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ENDOCRINE FACTORS IN DEMENTIA PRAECOX*

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THE relation of endocrinology to psychiatry has been perenially discussed in one guise or another for a generation but with no great satisfaction to the readers nor probably, in most cases at least, to the writers. When to the complexities of psychiatry are added the uncertainties of endocrinology, the difficulties multiply roughly in accordance with the law of permutations in about fourfold ratio to those of either field separately.

Whether there be endocrine factors operative in the etiology of dementia praecox raises the broader question regarding its physical or psychogenic origin, though if one concedes that heredity plays a significant rôle in the disease, this can scarcely be regarded as a problem. Psychogenic conflicts are not transmissible. To say that the results of such conflicts are transmissible is not only dubious biology but actually concedes the issue because such results must be registered in, and transmitted through, physical structures. Too, if one agrees with Kretschmer that constitution plays any significant rôle, again he concedes at least considerable if not predominant significance to physical factors.

Menninger's[1] recent review of the evidence renders superfluous any lengthy discussion of the probability that the disorder actually does arise on a physical basis at least with some frequency. There can be no question but that, as this author states, "Infectious disease, not to mention other exogenous agents, in certain persons breaks the integrative fabric of consciousness and releases a psychologic regression of various degrees and types. These regressive pictures include all the recognized 'reaction types' but apparently most frequently the delirious and the schizophrenic. The syndromes formerly designated 'dementia praecox', 'toxic infections', 'amentia' and 'confusional psychosis' are all included, the differentiation being in many cases neither possible nor useful. The particular type of psychotic picture revealed in a particular case by a toxic attack on the encephalon probably depends upon the kind of mental structures pre-existing, and not demonstrably on the kind of toxin (or infection)."

To make a distinction between "true" and "seeming" dementia praecox on a basis of chronicity is to beg the question. It would seem most consonant with the evidence and most respectful toward the claims of logic to assume that dementia praecox, like other similar "malignant neuroses", is a "reversible reaction", the chronicity depending merely on the temporary or permanent nature of the underlying cause. From this point of view our problem, then, is to what extent endocrine deviations may play an etiological rôle in determining and maintaining the schizophrenic reaction patterns. It would seem to be merely unprofitable dialectic to enter at this time into a debate as to whether a distinction should be made between "true" dementia praecox and other psychoses diagnostically indistinguishable from it.

Furthermore, to seek any one exclusive "cause" of dementia praecox, either psychogenic or physical, is to betray ignorance of the nature of causality. One can only discuss the relative importance of various links in the chain, and these are numerous.

As an *a priori* consideration, the question at once arises whether, and to what extent, the "glands" may influence "personality". That they may play an important part is maintained by such antipodal writers as Cushing[2] and Berman[3], to say nothing of the intervening hosts. The evidence that endocrine factors may influence the personal disposition has been so frequently discussed as to be threadbare. The shrewish propensities of victims of ovarian deficiency are notorious. The thin, irritable type of hypothyroidism is less known but is quite as real as the phlegmatic, retarded type. The evidence that the pituitary may be more or less at fault in "problem children", while not so clean-cut, is strongly suggestive. Without subscribing to the extreme claims of those who would exonerate the Loebs and Leopolds as purely victims of endocrinological fate, it can be recognized that the endocrine glands, as well as the colon, the liver and numerous other organs, do play a part in our reactions to the flings and arrows of outrageous fortune. Oswald[4] has recently discussed this phase of the problem at some length.

Another approach to the topic is to consider the frequency with which recognizable endocrine stigmata occur in the psychotics. That such stigmata occasionally are found cannot be

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questioned, but the determination of whether they occur more frequently in the psychotic group than in the population at large requires more evidence than is now available.

In the last analysis, no amount of arm-chair research will settle the question regarding the endocrine factors in schizophrenia. Such considerations as the foregoing can merely serve to indicate whether or not a genuine problem exists. When and only when a significant number of schizophrenics have been convincingly diagnosed as endocrinopathic and have been significantly benefited by measures addressed to the correction of endocrine deviations will the problem be satisfactorily settled. The remainder of this paper, therefore, will be devoted to a discussion of the incidence of endocrine anomalies and of the results of endocrine treatment of dementia praecox.

INCIDENCE OF ENDOCRINOPATHIES IN DEMENTIA PRAECOX

The chief reason why our knowledge of the incidence of endocrine disorders in dementia praecox is so defective is undoubtedly the lack of satisfactory diagnostic criteria in the field of endocrinology. Aside from the gross classic stigmata such as girdle obesity, acral hypertrophies and amenorrhea, perhaps the most significant index of endocrine involvement is the basal metabolic rate.

Sleeper and I[1] have recently succeeded in finding reports of the basal metabolism in two hundred and six schizophrenics. These were recorded in thirteen papers beginning with Bornstein[6] in 1908 and ending with Bowman[7] in 1927. Of these two hundred and six cases, ninety-four, or nearly half, gave rates below 90 per cent., which is the conventional lower limit of normality. Ninety-seven fell within the so-called normal range of 90 to 110 per cent. and 15 were above 110 per cent. At the Worcester State Hospital, within the past few months, we have made determinations on eighty additional subjects. With careful technic and repeated rehearsals to familiarize the subjects with the procedure, we have succeeded in every case in getting readings below 110 per cent. Forty-three patients, or 54 per cent. of the series gave readings below the lower limit of normality and thirty-seven, or 46 per cent., fell within the normal range. The mean value for the series was 89.1 per cent. A frequency curve plotted from our findings was sufficiently smooth to indicate that the addition of further numbers would not greatly modify its form. Our cases were fairly evenly distributed among the simple, hebephrenic, catatonic, paranoid and mixed types. The number in each group was too small to permit specific deductions, but depressed metabolism occurred in approximately the same proportion in each. Whatever may be the explanation, it can now be said, with a high degree of confidence, that about 10 per cent. reduction in basal metabolism is a characteristic of dementia praecox.

Another criterion that has frequently been employed is the fasting blood sugar level, or the blood sugar curve after the ingestion of glucose or the administration of epinephrin. Such determinations, as usually made, are meaningless. As pointed out by Hansen[8] and independently by Albritton[9], the normal blood sugar percentage varies erratically from minute to minute without any detectable reason to account for the variations. The blood sugar would seem to be in a state of highly unstable, fluctuating equilibrium and either single determinations or straight line intrapolations from point to point at quarter or half-hour intervals give an entirely misleading picture of actual existing conditions. It is an axiom of elementary statistics that the more variable is a given phenomenon, the larger is the number of cases essential to determine the existing trends. On *a priori* grounds one would expect the findings in small groups of cases to be highly variable and an examination of the literature bears out this supposition.

Too, the evidence is not at all clear that the hyperglycemic effect of pain and excitement has been adequately controlled in the observations that are on record. These might well introduce a vitiating factor.

The fasting blood sugar lever has perhaps some significance as indicating conditions of the endocrine glands. Thus, it may be high in states of over-activity of the thyroid or the hypophysis and low in adrenal deficiency. That such is the case, however, the testimony is by no means unanimous. Numerous observers have determined the blood sugar level in dementia praecox and have found, as could be confidently predicted from Hansen's and Albritton's work, marked variability. Some writers have regarded high levels as characteristic, others low levels. In some seventy cases studied at the Worcester State Hospital we have gained the impression that most subjects, irrespective of clinical type, if not unduly excited, give somewhat low readings. Our data, however, have not yet been analyzed.

The evidence on the hyperglycemia test has recently been reviewed by Gordon, Ostrander and Counsell[10]; hence a mere summary will suffice here. While the data are scarcely homogenous enough to permit statistical treatment, it appears that the blood sugar, after a glucose meal, tends to remain high considerably longer in schizophrenic than in normal subjects.

Presumably, the same fluctuations in sugar percentage would occur during epinephrin hyperglycemia as in the normal state. The use of this as a diagnostic test, therefore, would seem to impose the same necessity for a large number of cases as would the alimentary hyperglycemia test.

Of similar general significance is the effect

of epinephrin on the blood pressure and it has the advantage of being more easily studied. Schmidt[11], as early as 1914, reported that the epinephrin reaction was decreased in dementia praecox, especially in the hebephrenic and catatonic types. Similar depression was reported by Neubürger[12] and by Dawson[13]. Lowry and Wright[14], controlling their work on other types of psychotic patients, obtained a rise of pressure in most cases though a fall in a few. Büchler[15] found the reaction variable, fluctuating with the clinical phases of the disorder. Langfeldt[16], in a notably careful study, found that schizophrenics reacted very much as normal subjects and concluded that the epinephrin test is of slight value. During the current year Kanner[17] has reported on thirty-four cases of dementia praecox selected to exclude physical disease that might affect the epinephrin reaction. This observer found that invariably vagotonic blood pressure curves were obtained irrespective of the type of schizophrenia from which the patient suffered. That is to say, the elevation of pressure was relatively slight and primary or secondary falls of pressure were noted. The data, on the whole, seem to indicate a lessened response to epinephrin as a characteristic of this psychosis. Whether this indicates a loss of peripheral sympathetic irritability or of so-called vagotonia is not conclusively shown. The evidence is cited merely to indicate that the autonomic system in dementia praecox reacts abnormally, a fact which may or may not be due to underlying endocrine defects.

That the functions of the endocrine glands and of the autonomic nervous system are intimately correlated has been emphasized by Pende, Cannon and many others. The fact that vegetative nervous anomalies are of frequent occurrence in schizophrenia has been recognized for a long time. Such phenomena as cyanosis of the extremities, dermographism, inequalities and irregularities of the pupils, sweating and increased or decreased salivary secretion have been discussed, among many others, by Kraepelin[18], Jelliffe[19] and Langfeldt[16]. Attempts, however, to determine deviations of autonomic irritability on a satisfactory quantitative basis have been to a large extent prevented by the lack of adequate tests. The hopes aroused by the publication of Eppinger and Hess's monograph[20] on vagotonia have signally failed of fulfillment. Such disappointment, however, was rather to be expected from the fallacious premises upon which these authors based their pharmacodynamic tests. They laid undue weight upon the reactions to atropine and pilocarpine. Both these drugs act predominantly upon the parasympathetic nerve endings, and hence, necessarily fail to show the existing degree of tonus in any proper sense of the term. It is altogether likely that the predominance of sympathetic or parasympathetic activity is determined much more by the conditions of the centers than of the peripheral mechanisms.

As regards the atropine tests, suffice it to say that Langfeldt[16], after a careful investigation of its practical utility, found it to be quite useless as bringing out salient characteristics in dementia praecox.

The pilocarpine reaction, however, in Langfeldt's hands proved to be more valuable. He got a severely positive reaction in eight of sixteen catatonics, in two of eleven hebephrenics and in three of thirteen mixed cases. On this and other grounds he concludes that hebephrenia is characterized by relatively excessive action of the sympathetic system and quiescent catatonia by parasympathetic dominance, whereas the acute phase of catatonia is marked by conflicting over-activity of both systems.

In addition to drug testing, studies of autonomic function have been made on a theoretically much better basis, namely, eliciting reflexes involving complete autonomic arcs. Those chiefly used have been the cilio-spinal and the Aschner occulo-cardiac reflexes.

Langfeldt found the Aschner reflex positive in five of sixteen cases of catatonia but in none of the thirteen hebephrenics studied. Bowman[7], in a study of seventeen cases, found the reflex sometimes positive, sometimes negative to abnormal degrees, but that most of the patients fell within the normal range. Langfeldt[16] reviews the work of other observers who have noted a tendency to positive responses. He interprets his own results as supporting the conclusion of vagotonic predominance in catatonia.

In the present state of our knowledge it would seem that a determination of the pulse rate and blood pressure with the patients in a resting state would serve more simply and quite as convincingly to bring out autonomic anomalies as any of the more elaborate procedures. A few only of the many studies along this line will be mentioned. A more extensive review will be found in Langfeldt's paper[16]. Kraepelin[18] found the blood pressure low as a rule and the pulse not characteristic. Langfeldt[16] noted that the pulse was usually slow in catatonia and the blood pressure about 100. In 80 cases at the Worcester State Hospital, Sleeper and I have noted low blood pressure and slow pulse very generally, irrespective of clinical types of phases of the disease. As regards the pulse rate, the average range was from 58 to 64 in the various groups in our series. A concomitant tendency to lowered body temperature has also been noted.

This hasty survey of some of the outstanding features of visceral and metabolic behavior may serve to emphasize the inadequacy of our knowledge. They seem to indicate more or less conclusively that schizophrenia is characterized by somewhat generalized depression of metabolic activities and by disturbances of autonomic irritability. Altogether, they can be interpreted in harmony with the basal metabolism and blood sugar findings as establishing some degree of antecedent probability of endocrine involvement,

but certainly can not be interpreted as proving it.

That adequate study of the blood and urine composition might serve to determine specifically the etiology of dementia praecox has been the hope of many students of the disease for a long time. As regards the chemistry of the urine, the elaborate pioneer study of Folin[21] at the McLean Hospital is well known. Despite seven years of intensive work, the study signally failed to disclose any deviation of composition characteristic of any type of insanity, though it did afford as a by-product the data that permitted this investigator to re-write the chapters in biochemistry on urine methodology and on nitrogen metabolism. Without going into laborious detail, it may be said that no one since the time of Folin has had any better success. Whatever metabolic perturbations may underlie the schizophrenic reactions, they do not disclose themselves by any known characteristic end-products or any known disturbance of the relations among the various components.

Studies in blood chemistry are of more recent vogue, but they, too, have failed to afford much light. Bowman[7] determined the percentage composition of the blood in twenty-four cases of dementia praecox, considering the non-protein nitrogen, urea nitrogen, uric acid, creatinine, amino-acid nitrogen, sugar, calcium, phosphorus and chlorides. He states that the findings were within normal limits in practically all cases and generalizes to the effect that the blood composition in schizophrenia shows no characteristic deviations from the normal. As a matter of fact, his summarizing table shows an upward trend of the uric acid. Nine of the twenty-four cases gave readings of 3.5 mgm. or more. Four cases were definitely above the upper normal limits. The residual nitrogen fraction also tended to range high, in ten cases amounting to 10 or more mgm. These uric acid and residual nitrogen findings, in the light of Rowe's work[22], are suggestive of edocrine abnormality in the patients. That the possibilities of blood and urine analysis have been exhausted in this or any other field can not be maintained. The possibility remains open that ultimately we may be able to go much further, even, perhaps, to direct hormone analysis.

In view of the paucity of significant data derived from direct analytical studies of the blood, special interest attaches to the work that has been done on the Abderhalden reaction in dementia praecox. This reaction is based on the theoretical conception that when the body has to deal with abnormal proteins, protective ferments are developed which have a specific action on such proteins. It was thought that if any of the organs of the body are especially affected in schizophrenia, protective ferments against the peculiar proteins thereby produced would appear in the blood stream. Much interest was aroused by Fauser's[23] claim that the dementia praecox group among two hundred and fifty cases of insanity showed a specific reaction toward the sex glands, the cerebral cortex and the thyroid. He claimed that the serum of females reacted only against ovary and that of males against testis protein. In quiescent cases of dementia praecox and in control subjects he found no ferments for either the gonads or the cortex. These findings seemed to show convincingly that the sex glands, primarily, and the thyroid, secondarily, are characteristically at fault in schizophrenia. But at the hands of later investigators, unfortunately, Fauser's work has failed often of confirmation, all sorts of inconsistent results having been obtained. Serejski[24] is authority for the recent statement that the Abderhalden reaction can not be depended upon in any way. The fact that the technic of the Abderhalden reaction is notably delicate, of course, raises the issue of competence of investigators. As a matter of consensus of opinion, Fauser's claims are now given relatively little credence, though an unbiased reading of the literature leaves one wondering whether there may not be a certain element of truth in them. Within the past five years the problem has been reopened, using the interferometer rather than the treacherous dialysis method to detect digestive changes in the serum. This work has not progressed far enough to permit an assessment of its value.

Passing mention may be made of a study now under way at the Worcester State Hospital, in which an attempt is being made to apply the diagnostic methods elaborated by Rowe[22] at the Evans Memorial in Boston. This investigator has found that in the different endocrinopathies, in addition to the classic diagnostic criteria, there occur various characteristic combinations of anomalies in the blood morphology and chemical composition, the urine composition, basal metabolism, vital capacity, galactose tolerance, pulse, blood pressure, temperature, etc. In some sixty cases we have found these deviations sufficiently marked in about half the subjects to permit tentative diagnoses of endocrine deficiency. The pituitary seems to be the gland most often at fault. It is to be emphasized, however, that the work at its present stage can not be regarded as conclusive. We have been led to suspect a high incidence of liver dysfunction which more or less disturbs the relationships relied upon for diagnosis. Moreover, certain confirmatory tests, such as determinations of the retinal color fields, are not available. In particular, the diagnoses must be rigorously subjected to the therapeutic test. This latter phase of the work has not progressed to a stage to permit any conclusions, though some apparently beneficial effects have been noted.

HABITUS AND BEHAVIOR

No attempt will be made to conduct this discussion through the intricate by-ways and up

the blind alleys of "constitution" in its technical sense. A few observations, however, regarding the habitus and correlated behavior of schizophrenics may be cited.

Gibbs[25] studied three hundred and twenty-five male patients at Ward's Island as to physical development and sex stigmata and one hundred and thirty-seven as regards sex relations. His findings showed a distinct lagging or lack of the "final completing touch" of sex development. Feminine pubic hair distribution occurred in 13 per cent. of patients admitted before the age of 20 and of those admitted after 20, 2.6 per cent. showed this. Scanty beard was noted in a third of the younger group and a fifth of the older. These findings could not be correlated with the size of the testes. The marriage rate was definitely lower in the praecox group than in the general population, other things being presumably equal. Of one hundred and twenty patients from whom satisfactory replies could be elicited, two-thirds had never achieved normal heterosexual adult relations. Of similar tenor is Beringer and Düser's report[26]. In 20 per cent. of their cases typically feminine fat distribution was noted and 10 per cent. showed a definite horizontal limitation of the pubic hair. Kretschmer[27] made a study of some four hundred cases of dementia praecox and the circular psychoses. He found more sexual abnormalities in the praecox than in the manic depressive group, ranging from impotence to homosexualism. He believes that homosexualism and schizoid characteristics are inherited interchangeably. Among one hundred and twenty-five male schizophrenics, 20 per cent. showed a eunuchoid trend and 8 per cent. were definitely of the eunuchoid type. Only one similar case was found among one hundred manic depressives. Among the women there were a considerable number with genital hypoplasia and with abnormal sex trends such as masculinism or infantilism.

As regards female patients, Fraenkel[28] investigated gynecologically more than five hundred psychotics, including one hundred and seventy-six schizophrenics. In 72 per cent. of the schizophrenics varying degrees of genital infantilism were found. Fraenkel's findings in general were confirmed by Geller[29], who notes in addition that irregular or absent menstruation is characteristic of dementia praecox. This statement, however, is denied by others. Gibbs[30] made a study of sex development and behavior in two hundred and three female schizophrenics. He was able to divide them into two groups, one showing early onset of the psychosis and inadequate sex behavior, the other with later onset and relatively adequate behavior. In the latter group, however, illicit sex experiences, beginning at puberty, were noted in more than half the cases. In the group of earlier onset, masculine hair distribution was five times as frequent as in the controls. Gibbs feels, as do most other writers who have discussed this phase of the subject, that the anomalies are probably to be ascribed to an underlying endocrine involvement.

One other phase only of the constitutional studies will be mentioned. Emerson[31] made an investigation of two hundred and eight dementia praecox patients at Ward's Island. In almost a third of these he observed physical abnormalities that he regarded as sufficient to justify a diagnosis of status lymphaticus. As stigmata of this condition he included scanty beard, axillary and sternal hair; slender thorax; rounded contour of the upper arms and thighs with arching of the latter; hypoplasia of the external genitals and velvety skin. Lewis'[32] postmortem studies at St. Elizabeth's Hospital would tend to bear out the conclusion that a high incidence of status lymphaticus is characteristic of the disease. In particular, he noted small hearts and aortas. Mott's observation that the adrenals are characteristically small in dementia praecox offers further supporting evidence, in that these two conditions very commonly coexist. Langfeldt[16], as a result of a particularly careful study of forty schizophrenics, also regards status lymphaticus as characteristic, at least in the catatonic cases. This he regards, however, as a result of constitutional endocrine inferiority rather than as an endocrinopathy itself.

ENDOCRINE PATHOLOGY

If it could be shown that any of the endocrine glands are selectively and consistently affected in schizophrenia, a high degree of probability would be established of the endocrine etiology of the psychosis. At the time of his death Mott was firmly of the opinion that this had been accomplished. The literature is too extensive to consider in detail, but some of the characteristic papers may be cited. In 1913, Parhon[33] reviewed the subject and reported that the sex glands are regularly involved in dementia praecox, the testes showing rather constantly absent or diminished spermatogenesis. The ovaries in general showed some but less impairment than the testes. Forster[34], working under the guidance of Mott, examined the ovaries in one hundred hospital cases, including nineteen of dementia praecox. All the subjects past 30 years of age showed signs of early involution with fibrosis and scarcity of Graafian follicles. Judging from her description, however, the ovarian changes were about equally marked in the psychoses other than schizophrenia. Frank[35] made a careful study of the glands of four male and two female schizophrenics, all but one having died before the age of forty. In the gonads of both sexes he found connective tissue increase as well as increase of the interstitial cells. Borberg[36] made a study of sixteen cases of dementia praecox controlled with other psychotic and endocrinopathic material as well as a series of cases in which death occurred from various in-

fections that are common among psychotics. In the ovaries he saw no noteworthy changes and in the testes was able to confirm the previously reported fibrosis and depressed spermatogenesis in only one case (except of those subjects dying of tuberculosis, all of whom showed these findings). In seven cases Fauser and Heddaeus[37] were unable to find any characteristic deviations in the sex glands. Mott and Prados y Such[38] made specially careful studies of the sex glands in a series of twenty-seven cases of dementia praecox controlled with material from various asylums and hospitals. Their technic was perhaps the best that has been employed in work of this type. They depended to a considerable extent upon the Rio del Hortego silver impregnation method to bring out finer cytological details. (Parados y Such was trained under the master histologist, Ramon y Cajal). They were able to convince themselves that dementia praecox (in distinction from other psychoses) is characterized by a regression of the sex glands that depends upon the stage and duration of the disease. In the last stage spermatogenesis is completely lacking and the testis shows a high degree of fibrosis. Mott ascribed a good deal of importance to the gonad degeneration as determining the psychosis. Morse[39] made a somewhat similar study of twelve male and fifteen female cases controlled "as far as practicable" with glands of non-psychotic subjects dying of the same immediate causes as did the schizophrenics. She was completely unable to confirm Mott's findings; while it is true that gonad degeneration was seen in patients dying of tuberculosis and other wasting diseases, those in whom this obscuring factor was not operative (6 cases) showed active spermatogensis or normal Graafian follicles and corpora lutea. Lewis[32], on the other hand, confirmed Mott's findings. Lewin[40] has recently reviewed the literature and reported a series of thirty-eight cases of dementia praecox controlled with material from other psychoses. He is in accord with Morse in finding that although degeneration of the gonads commonly occurs, it is no more marked in schizophrenia than in other psychoses. He regards tuberculosis as the outstanding cause of the gonad regression. That gonad involvement is common in dementia praecox has been reported by most other observers, but whether more so than in other psychoses or in other patients with wasting diseases is not clear.

As regards the thyroid, the testimony is no more concordant than in the case of the gonads. Parhon's findings in the thyroid were inconstant. Frank[35] found increase of connective tissue with decrease of colloid in four of six cases. Borberg[36] noted in thirteen cases, controlled with other psychotic material, six thyroids entirely normal, two with light fibrosis and five with fairly marked fibrosis. The colloid was about normal in amount. Similar changes were found in control material. Witte[41] studied the thyroids of eight hundred and fifteen schizophrenics with abundant controls of other psychotic as well as non-psychotic patients dying of the same diseases as the psychotics. He found notably less atrophy in dementia praecox than in other psychoses but a characteristic tendency to colloid increase with advancing age. Morse[39], in twenty-seven cases, found occasionally mild glandular hyperplasia or fibrosis. Lewis[32] found evidence of regenerative activity in his material. Lewin[40] noted fibrosis in twenty-nine of thirty cases but obtained similar findings in his control material. The trend of the evidence is to indicate some degree of thyroid regression in dementia praecox as in other psychoses, but whether this is to be associated primarily with the psychosis is to open to doubt.

That the pituitary may also be involved is suggested by some of the reports in the literature. Frank[35] observed abnormal proportions and vacuolizations of the epithelial cells of the anterior lobe and a depression in gland weights in six cases. Borberg[36], in sixteen cases, observed congestion in about half with light fibrosis in some. Morse[39] also noted fibrosis in about half of her twenty-seven cases, but control studies led her to ascribe this to the terminal disease and nutritional state of the patient rather than specifically to the psychosis. Mott and Robertson[42] studied the pituitaries of twenty victims of dementia praecox and of twelve normal control cases. Thirteen of the twenty schizophrenics died of tuberculosis. These authors interpreted their pituitary findings as indicating a "marked exhaustion" characteristic of dementia praecox. This they regarded as only a special case, however, of the "universal morbid regressive nuclear change" seen in this disorder. Lewin[40] found more or less pituitary fibrosis but nothing characteristic of dementia praecox. The evidence, then, as regards the pituitary is also inconclusive.

Frank[35] found the lipoid content of the adrenals increased though the weight was normal, as was the medulla of the gland. In Borberg's[36] sixteen cases, three tubercular subjects showed adrenal fibrosis and four cases, lymphocytic invasion. Otherwise, the findings, including the lipoid content, were approximately normal. Witte[43], in some six hundred and fifty cases well controlled wth psychotic and non-psychotic material, found a notably high incidence of decreased lipoid in dementia praecox. Mott and Hutton[44] made a careful study of the adrenals in twenty-six psychotics using the silver method as well as the more common histological stains. Their observations were well controlled by study of other psychotic and accident material. There was a marked predominance of cases in which the adrenals were light. The medulla was nota-

bly diminished and in some cases fibrotic. The cells were small and the cytoplasm vacuolated. In the cortex no striking abnormalities were seen. These authors vigorously maintain that the changes are due to dementia praecox as such. Morse[39] found some atrophy and lipoid depletion, but this occurred also in control material and is ascribed to the terminal disease. Lewin[40] found adrenal fibrosis in twelve of twenty-six cases with lymphocytic invasion in seven. The lipoid was relatively diminished in the older subjects. He also found nothing characteristic of dementia praecox in these changes. It would seem that, on the whole, a fairly good case is made for the assumption that adrenal deficiency often occurs. That this may be found in other psychoses does not necessarily detract from its significance.

That fairly extensive changes, generally of a degenerative nature, often occur in the principal endocrine glands in dementia praecox seems fairly well established. Whether, however, these changes are in any way characteristic of dementia praecox, as maintained by Mott and by Lewis, or whether they are incidental to the intercurrent diseases of which the subjects die, or to their nutritional state can not from the available evidence be determined. Perhaps the majority of investigators lean toward the second supposition. The outstanding impression of the present reviewer is that the technic hitherto employed is inadequate to bring out the finer changes by which alone functional deviations might be indicated. Ordinarily the material has been fixed in formalin, cut in thick sections and stained with the conventional hematoxylin and eosin. The outstanding need is an extensive study of the whole problem of the endocrine pathology of dementia praecox *de novo,* using the newer cytological methods with prompt collection of material, preferably even by biopsy, fixation in small pieces with the chromic and osmic acid mixtures and stained to bring out minute structural changes. Rigorous control with psychotic material and with that from non-psychotic patients dying of similar diseases to those of the schizophrenics are imperative. Finally, enough cases must be included to permit valid statistical deductions. This will obviously be a large and difficult undertaking, but when, and presumably only when, it is completed shall we be in a position to state conclusively whether or not any one or more of the endocrine organs is characteristically affected in dementia praecox.

ENDOCRINE THERAPY

From a practical point of view, absolutely, and from a theoretical point of view, to a considerable extent, the crux of the whole question is, what can be accomplished in dementia praecox by measures directed to the correction of endocrine anomalies? Of the castrations that have been practiced, only passing mention need be made. If, as the evidence tends to indicate, hypogonadism is an essential feature of the disease, removal of the sex glands could be expected only to make a bad matter worse.

The case is somewhat better for thyroidectomy. Berkley[45] reported a successful outcome in six consecutive cases of catatonia following removal of part of the thyroid, in two instances supplemented by the administration of "thyrolecithin". In a few instances other observers have reported favorable results. The literature has recently been reviewed by De Courcy[46] who adds two successful cases of dementia praecox treated by partial thyroidectomy. Presumably successful results can be expected only in cases suffering from intercurrent or initial hyper- or dys-thyroidism.

Grafting experiments have given disappointing results as far as they have been carried out. Fraenkel states that ovarian transplants rarely take.

Of more immediate interest are the results to be expected from the administration of gland extracts. In the 1919 edition of Kraepelin's book, "Dementia Praecox and Paraphrenia,"[18] occurs the statement: "Many years ago I endeavored to acquire influence on dementia praecox by the introduction of every possible organ, of the thyroid gland, of the testes, of the ovaries, and so on, unfortunately without any effect". In 1923 Wagner-Jauregg[47], also dealing in generalities, wrote in opposite tenor. He claims that in many cases of early hebephrenia the disease process can be favorably influenced by extracts of the thyroid and sex glands and that in the small group of women showing early dementia praecox associated with genital hypoplasia ovarian and thyroid extracts induce the appearance of secondary sexual changes with return of the mental state to normal. Fraenkel[48] also believes that ovarian therapy in adequate dosage is useful in ameliorating the condition of this group of patients. It is to be noted that recent developments in our knowledge of ovarian hormones have presumably materially brightened whatever hope these pronouncements offer.

In the actual successful endocrine treatment of schizophrenia the palm would seem to go to Lewis and Davies[49]. From the wards of St. Elizabeth's Hospital they selected twenty-two patients with stigmata well enough marked to permit a diagnosis of definite endocrine deficiency. In two instances therapy was not instituted. In the other twenty cases either physical or mental improvement, concurred in by six observers, was obtained in one hundred per cent. of the cases. Nineteen of the twenty improved physically; mentally, four recovered sufficiently to be discharged and nine others showed considerable improvement. The endocrine medicaments used were thyroid, male orchitic, whole gland adrenal and pituitary substance. The dosages were remarkably small, ranging from two to four grains a day in all cases in which they were recorded.

Kauders[50] has recently reported on the use of male and female gonad extracts in dementia praecox as well as in experimental animals. He reaches two conclusions, namely, that treatment with sex gland preparations must be extended over months to give results and that from fifteen to twenty times the usual indicated dosage must be used. He reports specifically on the treatment of eight male schizophrenics whose cases had been getting progressively worse for years. One paranoid and one catatonic showed noticeable improvement after the first three weeks, one finally being completely cured. One subject who had been for two years in a catatonic stupor was treated for six months and after the third month showed no psychotic symptoms except negativism. Another subject, paranoid for three years, corrected his delusions after three months treatment and showed general improvement. The other four patients showed no mental improvement, but two, at the time of the report, were improving physically sufficiently to justify further treatment.

Mayer[51] reported the case of a patient, rather typically catatonic who, under thyroid treatment, went through a manic phase then became free from mental symptoms, but with only partial insight. Davidson[52] also reported a single case successfully treated. Thyroid substance was given in increasing doses up to sixty grains daily. The pulse went up to 150, presumably with the patient in bed; the dosage was then reduced and the psychosis completely cleared up. Sawkins[53] reported a single case illustrating the regime followed at the Kenmon Mental Hospital, in New South Wales. Patients are kept in bed and given a vigorous course of thyroid treatment over a period of three to six weeks, the dosage being gradually raised to seventy-five grains daily. This causes tremor, a pulse of 120 or more, loss of weight, sweating, anaemia and sometimes anorexia or vomiting. The thyroid is then stopped either gradually or abruptly. One of the striking results of this regime is that the patients become notably more accessible and amenable to psychotherapy. The results may be brilliant. The case is cited of a man past fifty who had been a hospital inmate for twenty years; he was an idle, pestilential, petty thief and fomenter of discord, who spent most of his time in the refractory ward. After reaching seventy-five grains a day the thyroid was gradually reduced to five grains. In the latter stage of the treatment the patient increased in weight and vitality, his conversation became sensible and in a few months he became notably trustworthy. He was ultimately discharged and for the past few years has been self-sustaining. Parenthetically, as regards the high dosages reported, it is probable that Burroughs and Wellcome's preparation was used. Seventy-five grains of this is the equivalent of about fifteen grains of most other products.

So much then for successful endocrine therapy. Of the negative results of Ball, Langfeldt and others little need be said, or indeed can be said, in view of the paucity of data reported. At the present stage of endocrinology negative results are seldom conclusive. Before one can render an adverse decision it must be shown that the gland substance selected was the one indicated in the individual case, that a potent preparation was used, that the dosage was adequate and that the treatment was continued for a sufficiently long period. In the negative reports that I have seen these conditions notably failed of fulfillment. In the situation under discussion positive evidence is vastly more convincing than negative. In evaluating reported success, however, one must not forget the "long arm of coincidence".

CONCLUSION

It will be recogized that the foregoing survey can make no claim to exhaustiveness. It probably does serve, however, to mirror in sketchy outline the whole picture as it now exists. The survey leaves one with the overwhelming impression that scarcely a single detail has been satisfactorily established. Only a beginning has been made in determining the significance of the possible endocrine factors in dementia praecox.

That the sex life and habitus are frequently abnormal is fairly definitely established. This correlates with the fact that the primary sex glands very commonly give histological evidence of degenerative changes or of aplastic development. The fact that similar changes are found in states other than dementia praecox signifies merely that in these conditions, too, gonad failure may play a role.

A similar comment may be made on the degenerative conditions reported in the adrenals, the pituitary and the thyroid. The fact that such conditions are not found in all cases of schizophrenia would seem merely to indicate that endocrine deficiency is not the sole cause of the disease, though it may well be an important contributory factor.

To determine the matter we must have many more exhaustive diagnostic studies. These must be rounded out by equally exacting therapeutic tests. The fact that more than one-sixth of all hospital beds in the United States are devoted to victims of dementia praecox constitutes this disorder the most insistent challenge to American medicine. In meeting this challenge much more work must be devoted to a determination of the part played by endocrine factors in its causation and of the possible value of endocrine substances in its treatment.

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THE TREATMENT OF ARTHRITIS

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CONSTANTLY we are being confronted with the problem of an arthritic patient in whom we, and other physicians previously, have been able to find no evidence of infection present in the body, or in whom infection has been removed without evident improvement of the joint condition. With our present knowledge of arthritis, how are we going to treat such cases? This is the problem we have been studying in the Out-Door Department of the Peter Bent Brigham Hospital, and our experience with a group of 89 cases is herein reported. With but few exceptions, these are old cases of arthritis, and not cases having an acute attack of arthritis for the first time. The average duration of the arthritis in these patients at the time they were seen first was five years. Previously they had had many kinds of treatment and frequently were quite discouraged. The treatment followed did not originate with the writer. There was much use of general measures used by physicians for years. The principles were those developed and used successfully by Goldthwait. These principles, in the opinion of the writer, need emphasis at this time because of the widespread feeling that all arthritis is infectious in origin and that the only way of attacking the problem of arthritis is by removing some possible focus of infection, or by using vaccines.

We have attacked the problem with two ideas in mind: first, to treat the patient as though infection, though not found, may be present.

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Adopting this hypothesis, everything possible has been done to improve the general health of the body in order to increase resistance to infection in case these types of arthritis shall be proved eventually to be infectious in origin. This policy seems most important and quite as sound in arthritis as in tuberculosis where infection is present, yet cannot be removed surgically. Certainly, all of the writers[1] on arthritis have emphasized the importance of general measures and have pointed out that fatigue, stress and strain, exposure, intercurrent infections, and any treatment which depletes will make the arthritic patient worse, and that measures which improve the health of the body help improve the arthritis. Arthritic patients constantly are being depleted by treatment; one of the most common ways in which this is brought about is that they are allowed to keep working to the point of exhaustion, deceived by the use of salicylates and other drugs as to their real condition, for thus, pain, which we assume is a protective symptom, is removed. Hence the patient does the very thing nature is trying to prevent. Mechanical irritation is added, to make the condition worse. The very fact that the disease becomes arrested in so many arthritic patients under such a variety of forms of treatment, or none at all, suggests that general measures, especially rest, often forced by nature through pain and disability, may be of far more importance than has been realized.

The general measures used are: (1) Rest. This is prescribed as bed rest, the patient lying horizontal, or in hyperextension in amounts indicated by the patient's strength and condition. It varies from the addition of two hours more in twenty-four, to rest in bed for days or weeks. (2) A complete diet. There should be avoidance of incomplete or deficient diets. We stress a diet high in vitamines and salts and sufficient in calories. (3) Sunshine. (4) Exercise. The amount and nature of the exercise must vary with the condition of the patient.

The second truth we have kept in mind is that after all, despite our knowledge that infection in the body can cause arthritis, certain types of the disease which never have been proved infectious in origin or associated with infection, may possibly have some other etiology. We know that deficient oxidation or deficient joint nutrition can give osteoarthropathy, that deficient diet and deficient sunshine can cause rickets in growing children, and that lack of these things can bring about osteomalacia in adults. Experimentally[2], deficient diets can produce joint changes in pigs and in chickens. We know that thyroid deficiency in children can lead to retardation of bone growth. We know that abnormal sensitivity to bacterial protein and possibly also to non-bacterial protein can give an allergic reaction, with joint swelling as one manifestation. With all these facts in mind, one wonders if there is such a disease as adult rickets, which we are not recognizing because the clinical picture is different from that in children; whether continued thyroid deficiency over a period of time leads to any bone or joint changes; whether we are overlooking allergic phenomena, or whether some of the vasomotor manifestations so common in arthritis are of that nature. Certainly, many facts argue against too close adherence to the infection theory as applied to all arthritis, and there is definite evidence pointing to the possibility of other causes of joint disease. We have, therefore, studied not only the physical signs and symptoms in the patient, but also his habits of living in order to find out, if possible, whether any other factors may be present which could be of importance in causing or in precipitating attacks of arthritis, or in making the disease worse.

One of the first steps to be taken in treating the arthritic patient is to try to determine, for the purpose of prognosis and treatment, the type of arthritis with which we are dealing, avoiding the error of treating all cases of the disease the same way. All arthritis is not the same either etiologically or pathologically. Our classification on the basis of etiology is: (1) infectious, (2) toxic, (3) metabolic, (4) traumatic.

It seems to us that, besides infection, there may be other factors present in arthritis so important that the correction of them will lead to arrest of the disease in a high percentage of cases, and lack of correction of them may prevent arrest of the disease. The factors we have found to be present most commonly are: (1) fatigue, (2) dietary deficiency, (3) bad body mechanics, (4) constipation, (5) endocrine deficiency. Frequently, one of these factors seems to be outstandingly present in a given case; more commonly, several may be present, suggesting that the sum total is the important thing. There is nothing new about all this. Many physicians have come to the conclusion that there are many elements involved in the precipitation of arthritis. However, there is need of emphasis of the point of view that in every case factors which deplete or cause the body to function below its best should be sought and corrected, and that one should expect by so doing to improve the general health. In our experience this improvement in the general health is the first thing that occurs in treating arthritis successfully. Improvement in the joint condition slowly follows.

In taking up these factors in detail, I shall say nothing at this time about infection and bowel function, for these have been emphasized adequately. It seems worth emphasis, however, that intercurrent infections, not properly treated, may have a severe depleting effect and thus be of great importance in cases of arthritis not infectious in origin.

FATIGUE

Fatigue is stated by many writers as being a depleting factor which may make the arthritis worse. Some go further and suggest that it may be a factor of sufficient importance to precipitate an attack of arthritis. It has indeed been our experience that arthritis most commonly occurs in the high-strung, conscientious, ambitious individual in whom the emotions of duty, fear, love, interest, or ambition may drive her or him on without much sense of fatigue to the point of exhaustion. In 25% or more of our cases this is the situation before arthritis begins. A 100% person tries to do a 125% job. Once the arthritis is present, the patient is distinctly below normal, yet she maintains she is well except for the joints, and falsely bolstered by analgesics, keeps on overdoing—a 70% person trying to do a 100% job. The fact that rest is present, coupled with so many forms of treatment, may be of real significance as to the importance of fatigue and it is also suggestive that we have seen patients in whom fatigue was very marked, recover from arthritis with no treatment except rest. However, the fact that rest relieves does not in itself mean that fatigue is of real etiological importance in arthritis. Rest is important in the treatment of any disease for it saves energy for repair and healing. We are so impressed with the importance of rest in the treatment of arthritis, however, that we are skeptical of success without it. Our failures occur especially in cases in which it is impossible to get sufficient rest. Therefore, if a patient has severe arthritis, and if he has been depleted, from burning the candle at both ends, we try to have him get twelve to twenty-four hours in bed in twenty-four, much of the time horizontal. Whatever the condition, we believe the energy intake per twenty-four hours must equal the energy output or the patient will grow worse.

Of course there is a difference between fatigue and a sense of fatigue, and we have found many patients with this sense of fatigue quite out of proportion to their activities. This situation may be present long before the onset of arthritis. Most of these cases have proved to have a dietary deficiency, or an endocrine deficiency, the correction of which relieved the sense of fatigue, and helped also to relieve the arthritis.

DIET

The utmost confusion exists as to what should constitute a proper diet in this disease. Almost every type of food has been considered "bad for arthritis", and there has always been a feeling that a correct diet is of some importance. The older men, who have seen special diets in arthritis come and go, have concluded that at present the best diet is a normal, complete one. Of late the question is being raised as to whether dietary deficiency may not be of real etiological importance, especially in the atrophic type. It is with rickets, osteomalacia, and certain experimental work on animals in mind, such as apparent arthritis in pigs and leg weakness in chicks due to dietary deficiency, that this question is being raised. Aub[3] has shown recently in his work on lead poisoning that a diet high in meats, starches, and sugars, while low in the dairy products, eggs, green vegetables, fruits, causes lead, and with it, the calcium to leave the bones. The reverse causes calcium to be deposited in the bones. This work has seemed to us to be very suggestive, for we believe that in atrophic arthritis there may be primary bone atrophy, and that this is a disease of bones as well as joints. We have acted on the assumption that here there may be a calcium deficiency and we have applied this idea in treating arthritis, especially the atrophic type.

In studying arthritic patients, we have attempted to determine whether there may be present a dietary deficiency which has existed for a long time preceding the onset of the arthritis. For a standard, we have accepted McCollum's[4] belief that there should be included in all normal diets, dairy products, green vegetables, and fruits, to an appreciable extent, and that the cereals used should be whole grain cereals. He believes, also, that the proportion of tubers, cereals, and sugars is too high in the average diet, and the dairy products and leafy green vegetables too low. Even with this as a standard, it is impossible to say, in many cases, whether a dietary deficiency is present or not, for no one knows how much of each food element is necessary to health. However, judged by this standard, a large per cent. of arthritic patients have an incomplete diet, (especially regarding calcium bearing foods and food high in known vitamins). A sufficient number have, as outstanding factors, only fatigue and incomplete diet to give the impression that the good results following the correction of these factors may be of significance.

In our experience a change from a deficient to a complete diet has led to improvement in the general health, and following betterment in the general health, there is generally improvement in the joint condition. We have allowed meat in moderation, urging liver when a secondary anemia is present. We advise daily a diet such as Aub uses to cause lead (or calcium) to be deposited in bone; one quart of milk, extra butter and cheese, two eggs, lettuce or spinach, or cabbage, or string beans, considerable fruit. We add whole wheat bread and whole grain cereals for vitamine B, and cod liver oil. The latter is used because of its known effect on the utilization of calcium and phosphorus in the growing animal. Calcium lactate is added in atrophic arthritis lest the calcium in the milk and green vegetables be insufficient. The starches and sugars are kept low unless they prove necessary to maintain the body weight.

Sunshine has proved to be of great importance

in rickets in the utilization of calcium and phosphorus. It appears also to be important in atrophic arthritis, and we use it as far as possible.

ENDOCRINE DEFICIENCY

To just what extent endocrine deficiency is of importance in arthritis it is difficult to say. It has long been known that the striking anatomical feature of the cretin is the abnormal skeleton, characterized by retardation of development of the bones. This is thought to be due to a general disturbance of nutrition rather than to any specific interference with the process of bone formation. However, the adult myxoedematous patient has never been considered especially subject to arthritis[5], though "neuralgia," and pains in the muscles, bones, and joints are not uncommon. Arthritis occurring after pregnancy and lactation is not uncommon, but here there would appear to be a calcium deficiency plus the fatigue of curtailed sleep, plus a possible thyroid deficiency. It has long been noted that arthritis is especially common in women at the menopause, and it appears to be fairly common after removal of ovaries. Occurring at a time when there is a readjustment of the endocrine system, this is especially suggestive. Cecil has voiced the experience of many of us when he says that "thyroid is frequently of value at this time while ovaries substance in our hands has so far proved of little value." However, thyroid is of value, too, in men where a thyroid deficiency occurs. It must not be forgotten, however, that in arthritic patients who are depleted, undernourished, and have a subnormal temperature and blood pressure, a low metabolism does not necessarily mean a glandular deficiency. It is merely another indication of a subnormal state. When indicated, the use of thyroid gland substance may determine the degree of permanency of the improvement of the general health and of the joints. In deciding this point we believe history, symptoms, signs, and metabolism should all be considered. Metabolism alone, whether high or low, is not to be relied upon, especially at the menopause, or when the joints are acutely swollen.

Again, a mild thyroid deficiency, which many active, successful people appear to have, may be of importance only because such a person with limited stamina is ambitious to do a 100% to 125% job. Thus excessive fatigue may occur though the patient is not conscious of doing more work than the average. Thyroid deficiency is thought to lead to premature arteriosclerosis and a slower rate of blood flow than normal, and it is thus probable that nutrition in the joint is impaired. This would explain the often very marked improvement in some cases of hypertrophic arthritis when thyroid is used alone, for thyroid, when needed, appears to improve the circulation everywhere in the body. It increases the rate of blood flow by increasing the pulse rate, and we have the feeling that it increases the caliber of the small arteries or capillaries also (for in hyperthyroidism there is vasomotor dilatation.) However, it is frequently of great value in the atrophic type as well, (cases in which one finds cyanotic and cold hands and feet due to vasomotor constriction.)

BODY MECHANICS

It is important to realize that one can develop irritation in normal joints by using them in a twisted position, or out of true, or by overuse or incorrect use of already damaged or recently inflamed joints. This situation may obtain in a case of infectious arthritis or in a case of metabolic arthritis and thus add one more factor to those already present in causing joint injury. Continuous joint strain, especially in a heavy person, may cause sufficient irritation in feet or in knees to cause actual joint inflammation although there is no general arthritis, so far as can be determined. This mechanical irritation commonly is superimposed on hypertrophic arthritis. This type of arthritis is treated by rest, heat, and the correction of body mechanics. As arthritis of other types may occur in a person whose "body mechanics" are incorrect, and as bad body mechanics may occur in persons with other types of arthritis, the differentiation on the basis of etiology is at times impossible. One must treat the patient then as though both types of arthritis are present.

Body mechanics must be considered, too, in a long, severe case of infectious arthritis or of atrophic arthritis, in order to prevent, as far as possible, fixation or deformity of the joints, or muscle atrophy. In such cases, use of the joints and muscles is encouraged within limits, and fixation in the best possible position is planned for hours of sleep or other times of inactivity. Thus function is best preserved. Once the arthritis is arrested, attention is given to correction of deformities and breaking up of adhesions by medical or surgical measures.

Body mechanics seems to us important from another point of view, that of respiratory, circulatory, and gastro-intestinal function, or general body function. That a posture with forward position of the head, lumbar lordosis, twisted knees, and pronated feet will cause mechanical irritation in these parts of the body is easily demonstrated. To use the chest flat and in a manner to limit costal and diaphragmatic respiration and allow ptosis of the heart and diaphragm, and to use the abdomen in a manner to allow ptosis of the abdominal organs, appears to us to be utilizing the body in a manner far from perfect. Although it is more difficult to demonstrate that so using the body leads to real injury and correction to improvement, because the factors of rest and exercise necessarily are employed to bring about correction, there appears to be marked improvement in the function of the organs involved, in the general circulation, and in the joint condition when the cor-

rect mechanics of these parts are observed. Following this reasoning, the bed patient is directed to avoid lying propped up in a position which seems to be restricting to diaphragmatic respiration and circulation, involves bad body mechanics, and in itself will cause functional backache, but rather to spend most of his time without pillows, lying in complete extension of the body. The ambulatory patient is encouraged to use the body as correctly as possible, helped by corrective exercises, and at times by mechanical supports.

Exercise is body mechanics in one sense, and exercise appears to be as effective in promoting the well-being of the body in arthritis as in health. Whatever else muscular exercise may do, we know that it improves muscle tone and preserves muscle strength, and increases the rate of blood flow in joints and in muscles. Any measure which increases the rate of blood flow in a joint makes the joint feel more comfortable to the patient, and apparently expedites healing. The morning stiffness, relieved by use of the joints, so common in arthritis, suggests that sluggish circulation may be present, or at least that lack of use of the joint and consequent slowing down of the circulation gives more pain and disability. Patients constantly note this and overuse the joints, fearing the stiffness and disability which comes from being too quiet. The arthritic patient, therefore, is given an appropriate amount of exercise, whether he is in bed or ambulatory. If he is a bed patient, this exercise allows him in convalescence, to get out of bed, with muscles frequently in excellent condition. Exercise is given especially for trunk muscles, as this is possible when the joints and muscles of the extremities are too painful to use, because trunk exercises seem more effective in speeding up the circulation, and because such exercises will also help to correct bad body mechanics.

In treating a case of arthritis, therefore, we first undertake to find out in what way the patient may have been living which would lead to depletion of the body, or diminution of bodily vigor, or cause joint injury, and then correct the situation. We especially look for abnormalities beginning prior to the onset of arthritic symptoms, and inquire particularly into a history of "burning the candle at both ends," deficient or incomplete diet, endocrine deficiency (or pregnancy and lactation), constipation, and bad body mechanics. In applying the corrective measures above noted, one more factor in treatment must be emphasized, that of time. One may expect quick results in an early, mild case of arthritis, but in patients who have been suffering from the disease for months or years, no quick results should be expected. These cases generally require many months before they are arrested, as do cases of tuberculosis. Moreover, a patient who considers herself well, and then returns to the bad habits which appear originally to have precipitated the arthritis may have return of the disease.

It is exceedingly difficult to evaluate results in arthritis. If one chooses early, simple cases, it is easy to demonstrate good results, especially if one follows the cases for a short period of time only. The reason for this is that probably 40% of people with arthritis recover from the acute attack regardless of treatment. In reality, the therapeutic procedures used may have had nothing to do with cessation of the arthritis, and, as so often happens, more severe and more prolonged attacks follow. Only by following a group of patients over a long period of time, or by treating successfully a series of severe cases, can we prove our therapy of value.

In evaluating results, it is also important to agree on what constitutes a good result and what constitutes a bad result. It is therefore important, on first seeing the patient, to appraise the damage already suffered. It is well to call this to the patient's attention, also, and to let him know that the best we can do is to arrest the progress of the disease (as in tuberculosis), and if we can do this and keep the disease controlled, we shall consider our results good. We cannot undo the damage already done, though we may ameliorate the condition to a considerable degree by orthopaedic measures after the disease is quiescent. Once arrested, however, it is surprising what good function there may be with considerable joint damage.

ANALYSIS OF CASES STUDIED

Of the 89 cases in this group, studied in the Out-Door Department of the Peter Bent Brigham Hospital, 80 or 91%, had had the disease more than one year when first seen; 53, or 59%, had had the disease more than two years. There were 36 cases who had been sufferers from 5 to 15 years. The average duration of the disease was about 5 years. Some of these patient had had the arthritis continuously active; others had had smouldering activity of the disease with occasional attacks of acute arthritis.

All but 7 cases seemed to the writer to be metabolic in origin, and all but 15 cases in the group were diagnosed (from history, physical examination, x-ray, and course of the disease) as atrophic arthritis. In only 7 cases did the arthritis appear to be at all associated with the presence of infection in the body or of the infectious type. In three of these cases foci of infection were found and removed. The possibility of infection being present in this group of arthritic patients studied was, of course, constantly kept in mind.

Thus, it would appear that in this group of arthritic patients, there must be very few who would have recovered spontaneously without treatment. This group does not represent a true cross section of arthritic patients, but rather the more severe cases which have previously been studied in other clinics or have been seen by

many doctors, and in which foci of infection have been found and removed without relief of the arthritis, or in which no foci of infection have been found. Thirty-six, or 40%, of these cases were exceedingly severe and the patients so incapacitated when first seen that they were unable to work. We are of the opinion, therefore, that the treatment used was to a large extent responsible for the improvement or arrest of the arthritis.

Of these 89 cases studied, 68, or 76% have have been followed more than one year; 42, or 47% have been followed more than two years; only 6 or 7% have been followed less than six months. Patients who were seen more than three times and who drifted away and did not follow treatment more than four to eight weeks are included in these figures.

We considered our results "good" in 59, or 66%, of these 89 cases. A "good" result means apparent arrest of the condition, or such marked and continuous improvement that complete arrest of the disease appears imminent. There were great difficulties in treating these cases at home and with the patients' limited finances, and we should have failed without the help of the Social Service Department. Many of the patients were really hospital cases. Freedom from the depletion of work and a correct diet were particularly important. Several of the cases which have been followed for years (a few have been followed four years) had recurrences of arthritic symptoms following cessation of treatment, or abandonment of correct living. Deficient diet, fatigue, bad body mechanics, constipation, or need of thyroid would appear to precipitate joint symptoms. The arthritis was controlled easily. This occurred in about 15% of cases.

Of the 89 cases studied, 25 or 29% did only fairly well. These cases did make definite progress towards recovery, but the arthritis was not arrested. Many of these patients, we know, did not or could not follow treatment as we wished; others did exactly as we suggested so far as we know. Five cases were entire failures, and we include in this number three patients who did not follow treatment.

There were thus 95% who were definitely helped by these measures. The more recent cases are being helped more completely (fewer who do only fairly well) due to our ability to apply these principles more exactly. In a group of 80 cases in private practice, the "good" results run 15% higher, due to greater ability in carrying out treatment. However, it always will be difficult to persuade patients with only moderately severe arthritis to carry out this type of treatment when they "feel fine except for the joints." They want to get well and yet live active lives. Thus, there will always be unnecessary failures.

The results noted above make us feel that the therapeutic measures used in the types of arthritis seen are sound and lead to more improvement and to a more permanent betterment than any method of treating arthritis with which we are familiar. The outcome in these cases makes us feel optimistic about what can be done to arrest arthritis, and it convinces us of the importance of such general measures as we have used as a prerequisite in treating all arthritis.

CONCLUSIONS

1. Results were reported on treating a group of 89 long standing cases of arthritis in whom infection had not been found.
2. Infection appeared to be an existing factor in only 7% of cases. All but 15% were atrophic arthritis, possibly metabolic in origin.
3. The average duration of the arthritis in the patients when first seen was five years; 91% had had the disease more than one year.
4. Of the 89 cases reported, 76% have been followed more than one year; 47% have been followed two years or more; only 7% have been followed less than six months.
5. Treatment consisted of doing everything possible to improve the general health of the patient and correcting any abnormality.
6. The correctable factors most commonly present were (1) fatigue. (2) dietary deficiency, (3) endocrine deficiency, (4) constipation, (5) bad body mechanics. Deficient diet was especially common.
7. This method of attack has led to good results in 66% of cases. "Good" means arrest of the disease or such marked improvement that arrest appears imminent. There were 29% who did fairly well—a total helped of 95%.
8. We feel that whatever else is done in treatment, these general measures are so important as to be a prerequisite to a high degree of success in treating arthritis.
9. It seems probable that not all arthritis is infectious in origin, but that other factors such as bad body mechanics, deficient diet, deficient elimination, fatigue, endocrine deficiency, may have some etiological or precipitating importance.

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THE TREATMENT OF ARTHRITIS, RHEUMATISM AND NEURITIS WITH CHEMOTHERAPY AND PHYSIOTHERAPY

BY WALTER M. BARTLETT, M.D.,* AND MISS E. SUNESON*

"RHEUMATISM" is a common name given by patients and doctors to a great number of pathological conditions characterized by pain. The pain may be anywhere, but the cause is always "rheumatism". Investigation of the statistics from insurance companies reveals that about fifteen per cent. of the disability claimed by people of the working class is due to the rheumatic diseases. Pains in joints or muscles are experienced by most people at some age or another and these may vary with the changes in the weather or their own indulgences. The vast majority of people, however, only have slight fleeting pains, which might be called a fibrositis or a myositis, and some slight change in the habits, environment, occupation or rest may be sufficient to correct the fault. The cause of these muscle pains and joint pains, and, indeed, the cause of the rheumatic group of diseases, is not fully known.

Most arthritic patients give a history of slight intermittent symptoms occurring over a period of months or years before any crippling deformity develops or before there is any realization that the disease is present. The patient suffering mild infrequent symptoms scarcely ever consults a physician and consequently the arthritic case is usually seen in a far-advanced stage. At the present time much experimental work on arthritis is being done and most of the recent reports indicate therapeutic progress. The object of this paper is to outline certain therapeutic procedures which are known to be beneficial, cite cases in which these methods have been employed to advantage and summarize briefly the practical forms of treatment with which the best results have been obtained.

It seems that every author develops a new method of classification of joint diseases and this varied nomenclature has given rise to confusion. Much of the difficulty is due to the fact that acute arthritis seldom, if ever, degenerates into a chronic form of arthritis. To start a simple classification with what is known and ending with what is unknown may help to clarify the confused terminology sufficient for the purpose of this paper.

I—INFECTIOUS ARTHRITIS OF KNOWN ETIOLOGY including that due to tuberculosis, streptococcus or staphylococcus, septic arthritis, purulent arthritis, syphilitic arthritis, and that occurring during acute infectious diseases such as typhoid and dysentery. This type is, then, either acute or chronic according to the etiology. The acute form is not generally due to tuberculosis, but all of these joint diseases cause pain, redness and swelling as indication of their infectious nature. Fluctuation and muscle spasm are characteristic. The onset of tuberculous joint disease is slow and the site most often involved is the hip, knee, spine or elbow.

II—TOXIC ARTHRITIS OF UNKNOWN ETIOLOGY includes the largest group of cases and is usually chronic, although it may be characterized by acute exacerbations before it finally becomes quite painless and definitely chronic in nature. This type is usually divided into two classes: (a) hypertrophic, and (b) atrophic.

The hypertrophic type of toxic arthritis usually occurs in old people, being most common after the age of sixty years. It is diagnosed by marked limitation of motion in the affected joint due to new bone formation and ankylosis. The Heberden's nodes seen in the phalangeal joints are typical. The usual case shows swelling, deformity and spontaneous pain on motion without redness or tenderness. There is more or less atrophy of the muscles about the joint and this is especially noticeable about the nodes on the fingers due to atrophy of the interossei muscles.

The atrophic form of toxic arthritis begins in the hands and small joints, where it causes subluxations of the joints with marked deformity. The fin-shaped hand is characteristic. This type is frequently called arthritis deformans. It is not so often associated with focal infection as is the hypertrophic form. There is no redness, tenderness or spontaneous pain and it is not so often characterized by acute exacerbations as is the hypertrophic form.

There are other forms of arthritis which do not belong strictly to either of the above groups. Such as acute rheumatic fever, which is characterized by sudden onset with marked pain, swelling and tenderness affecting many joints in series. True gouty forms of arthritis are seen less commonly and are characterized by nodules about joint cartilages, called tophi, which are found to contain deposits of sodium biurate. If tophi are not found or have not developed, the diagnosis of gout may be very puzzling unless the uric acid retention and x-ray pictures are typical. Gout may be acute, chronic or irregular. Acute gout begins, as a rule, in the metatarso-phalangeal joint of the great toe with acute pain and swelling and the patient is very sick. This is a rare condition in the joint clinics today. Gout may be polyarthritic, affecting both knees and wrists. Chronic gout causes marked deformities of the feet and hands with severe crippling and in these cases tophi may be found anywhere in the body. The x-ray examination of such joints shows a typical punched-out or chewed-

*For record and address of author see "This Week's Issue," page 399.

out appearance, an asymmetrical irregular appearance, with nodules or nobs and occasionally some lipping of the bone ends as is seen in hypertrophic arthritis.

From all recent reports on the treatment of arthritis it would not be too early to predict that it is a disease which will eventually be conquered by chemotherapy. It is probably advisable to modify any such prediction, however, by adding "with the aid of physiotherapy". In this report, therefore, the treatment will first be discussed from the standpoint of chemotherapy and secondly from the standpoint of physiotherapy.

CHEMOTHERAPY

In the past four years the experience of various clinics with the use of ortho-iodoxy-benzoate have appeared in the literature. The primary report on the drug by Young and Youmans[1] was soon followed by Smith's[2] precise report of a large series of cases from the Boston City Hospital in which excellent results were obtained with the use of this drug. Smith tried to analyze the treatment from the standpoint of chemotherapy and concluded that the IO_2 radical was the important part of the preparation. This was borne out by his experiments. In his report he classified cases in a clear fashion and for comparative reasons this report will be given in a similar form. In addition to purely arthritic cases, we have given the preparation to patients suffering from neuritis, prurigo, and persistent edema in an attempt to learn more about its action. Its efficacy in removing swelling from joints was borne out by the fact that in a patient with severe nephritis, nephrosis and uremia, who had been on a salt-free diet for many months and in whom the edema had resisted strenuous diuretic drugs, the edema was noticeably lessened by one injection of ammonium ortho-iodoxy-benzoate (0.75 gram in 100 c.c. of distilled water). There was no noticeable effect on a case of obstinate prurigo of the injection of a similar dose of the drug. In cases of neuritis the pain was always relieved and if at the same time the cause of the neuritis, such as hyperglycemia, was removed, there was no recurrence. The method of using the drug in cases of arthritis has been the same as reported by Smith[2] modified by the use of the commercial preparation of the drug "Oxo-ate" or "Amiodoxyl Benzoate", depending upon the firm from whom it is purchased.

PHYSIOTHERAPY

Physiotherapy, particularly massage and medical gymnastics, plays a large part in the treatment of arthritis. The use of diathermy and electrotherapy is helpful in specially indicated cases, but in the advanced case of arthritis nothing can take the place of deep muscle massage and active and passive exercises.

Exercises are contraindicated in the presence of septic fever or during the most acute stages of toxic arthritis, but as soon as conditions permit, passive and active movements of the joints and general muscle massage should be given. Deep and vigorous muscle massage is given to all muscle groups to prevent muscle atrophy and spasm due to prolonged inactivity. Massage over the joints themselves is not advisable.

Effiurage or stroking is always used at the beginning and at the end of a treatment to improve the circulation and promote absorption. Exercises are at first strenuous and trying for a patient after a long illness, but as soon as the patient gains confidence in the operator, the improvement from day to day is surprising. Passive movements are followed by active movements and these in turn, are increased in severity according to the patient's endurance and general condition. The patient should be encouraged to walk and use the joints as much as possible even in spite of pain.

The clinical results tabulated in Table I show the effect of the combined chemotherapy and physiotherapy in eighteen patients. A woman of 46 years (Case No. 8), who had been suffering with atrophic arthritis for six years and for ten months had been unable to leave her bed or move her fingers or arms, was under treatment for six weeks. During this time she received 10 injections of one gram each of ammonium ortho-iodoxy-benzoate and also the drug by mouth with daily massage treatments. By the end of the second week the pain in the joints had subsided so that she could be given light passive movements. She continued improving gradually until at the end of her hospital stay she was able to feed herself, comb her hair and walk up and down stairs with considerable ease.

CONCLUSIONS

(1) In dealing with infectious arthritis, rheumatism and neuritis, the first important duty of the physician is to find and eradicate infectious foci.

(2) Active motion of joints, in spite of pain and muscle spasm, should be insisted upon.

(3) Vigorous and deep muscle massage is the most beneficial form of physiotherapy and must be applied daily.

(4) The salts of ortho-iodoxy-benzoic acid do not cure arthritis. The ammonium salt, when given in large enough doses intravenously, can be depended upon to relieve pain and muscle spasm in the majority of cases and gives thereby opportunity for securing marked improvement.

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CASE NUMBER	TYPE OF ARTHRITIS	SEX	AGE	DURATION	CONSTIPATED	FOCI OF I
1	Hypertrophic Arthritis	F	50	6 yrs.	yes	Teeth, t gall
2	Atrophic Arthritis	F	48	5 yrs.	no	None
3	Hypertrophic Arthritis	F	42	4 yrs.	yes	Teeth, t
4	Atrophic Arthritis	F	52	8 yrs.	yes	None
5	Atrophic Arthritis	F	56	5 yrs.	yes	Teeth
6	Subacute Septic Arthritis	F	19	2 yrs.	no	Teeth, t
7	Atrophic Arthritis	F	62	10 yrs.	yes	Teeth, t gall
8	Atrophic Arthritis	F	46	6 yrs.	no	None
9	Acute Rheumatic Fever	M	23	6 mos,	no	Tonsils
10	Hypertrophic Arthritis	F	40	4 yrs.	no	Teeth, t
11	Hypertrophic Arthritis	M	61	3 yrs.	yes	Teeth
12	Atrophic Arthritis	F	50	4 yrs.	no	None
13	Hypertrophic Arthritis	F	56	8 yrs.	no	None
14	Hypertrophic Arthritis	F	60	5 yrs.	no	None
15	Neuritis (diabetic)	F	46	2 yrs.	no	None
16	Neuritis (diabetic)	M	52	1 yr.	no	Tonsils
17	Neuritis (diabetic)	M	38	6 mos.	yes	None
18	Neuritis (diabetic)	F	42	4 yrs.	yes	None

PATED	FOCI OF INFECTION	JOINTS INVOLVED	JOINT DESTRUCTION	ANKYLOSIS	SWELLING
	Teeth, tonsils, gall bladder	Ankles, knees, wrists, fingers, elbows and shoulders	yes	yes	yes
	None	Fingers and shoulders.	no	slight	yes
	Teeth, tonsils	Knees, ankles, hips, wrists, elbows, and shoulders.	no	slight	marked
	None	Shoulders, elbows, fingers, spine, hips, knees and ankles.	yes	yes	yes
	Teeth	Ankles, knees, shoulders, spine, elbows, and fingers.	no	no	yes
	Teeth, tonsils,	Ankles, knees, toes, hips, spine, shoulders, elbows, jaw and fingers.	no	no	marked
	Teeth, tonsils, gall bladder	Ankles, toes, knees, hips, shoulders, elbows, wrists and fingers.	yes	yes	slight
	None	Knees, hips, shoulders, elbows, wrists and fingers.	slight	slight	yes
	Tonsils	Ankles, knees, shoulders, elbows, cervical spine.	no	no	yes
	Teeth, tonsils	Knees, fingers	yes	no	yes
	Teeth	Knees, elbows, shoulders	no	no	yes
	None	Fingers, shoulders, elbows, wrists, spine, hips, knees, and ankles.	no	yes	yes
	None	Fingers and knees	no	no	yes
	None	Fingers, knees, ankles, and shoulders	no	no	yes
	None	Sciatic	no	no	no
	Tonsils	Lumbosacral	no	-	-
	None	Sciatic	no	-	-
	None	Brachial	no	-	-

SWELLING	PAIN	MUSCLE SPASM	NUMBER OF GRAMS REC'D		TOTAL GRAMS REC'D	DURAT
			VEIN	ORAL		
yes	yes,on motion	yes	12	24	36	6 wks
yes	no	no	18	140	158	6 mo
marked	marked	moderate	8	none	8	4 wk
yes	yes	yes	5	16	21	6 wk
yes	yes	yes	26	40	66	6 mo
marked	marked	marked	12	60	72	4 mo
slight	slight	marked	12	20	32	2 mo
yes	yes	yes	10	160	170	4 mo
yes	yes	yes	2	6	8	3 wk
yes	yes	yes	16	120	136	4 mo
yes	yes	yes	6	30	36	4 wk
yes	yes	yes	12	110	122	8 wk
yes	yes	yes	0	40	40	4 wk
yes	yes	yes	0	60	60	6 wk
no	yes	no	6	12	18	4 wk
-	yes	-	2	0	2	2 wk
-	yes	-	4	0	4	3 wk
-	yes	-	3	0	3	2 wk

ING	PAIN	MUSCLE SPASM	NUMBER OF GRAMS REC'D		TOTAL GRAMS REC'D	DURATION OF TREATMENT	PAIN
			VEIN	ORAL			
	yes,on motion	yes	12	24	36	6 wks.	yes
	no	no	18	140	158	6 mos.	no
d	marked	moderate	8	none	8	4 wks.	yes
	yes	yes	5	16	21	6 wks.	yes
	yes	yes	26	40	66	6 mos.	yes
d	marked	marked	12	60	72	4 mos.	yes
t	slight	marked	12	20	32	2 mos.	yes
	yes	yes	10	160	170	4 mos.	yes
	yes	yes	2	6	8	3 wks.	no
	yes	yes	16	120	136	4 mos.	yes
	yes	yes	6	30	36	4 wks.	yes
	yes	yes	12	110	122	8 wks.	yes
	yes	yes	0	40	40	4 wks.	yes
	yes	yes	0	60	60	6 wks.	yes
	yes	no	6	12	18	4 wks.	yes
	yes	-	2	0	2	2 wks.	yes
	yes	-	4	0	4	3 wks.	yes
	yes	-	3	0	3	2 wks.	yes

NT	RELIEF TO PAIN	SWELLING	M. SPASM	COMPLICATIONS	RECURRENCE
	yes	yes	yes	Secondary Anemia	Slight after a few weeks; refused to continue treatment.
	no	yes	no	Hypertension; Diabetes; Secondary Anemia	Stopped progress of arthritis as long as treatment was continued.
	yes	yes complete	yes	Obesity	None after six months
	yes	yes	yes	Angina Pectoris; Hypertension.	Excellent result but treatment was necessarily stopped because of dangerous complications.
	yes	yes	yes	Diabetes; Cancer of breast	Offered temporary relief when every other treatment failed.
	yes	yes complete	yes	Secondary Anemia	Yes, after two months but never severe since treatment.
	yes	yes	yes	None	Stopped treatment; recurred after six months complete relief.
	yes	yes	yes	Obesity; diabetes.	None. Still improving.
	no	no	no	Mitral stenosis	Injections seemed to initiate acute exacerbation of the joints.
	yes	yes	yes	Obesity; arthrodesis of knee (twice)	None for four months; slight symptoms at present.
	yes	yes	yes	Hypertension	None for five months.
	yes	yes complete	yes	Diabetes; secondary anemia.	None in six months.
	yes	yes	yes	Secondary Anemia	None in five months.
	yes	yes	yes	Obesity; Hypertension.	None in eight months.
	yes	-	-	Diabetes	None in six months.
	yes	-	-	Diabetes	None in two months.
	yes	-	-	Diabetes	None in eight months.
	yes	-	-	Diabetes	Yes after one week.

UNIV. OF MICH.

A SURVEY OF THE HOSPITALS OF THE WORCESTER DISTRICT*

BY LESTER C. MILLER, M.D.†

So far as the writer can learn, no comprehensive survey of the hospitals in this district has ever been made. Early in 1927, Dr. Samuel B. Woodward read a paper called "Worcester Hospitals" before a Medical Club commonly called "The Twelve Apostles". This paper was historical and dealt with all the known hospitals whether defunct or still existing that have ever been organized in the City of Worcester. One fact which Dr. Woodward brought out is of interest to the writer; i.e. that, except the Belmont Hospital and the State Institution for Insane, none of the existing hospitals ever started in buildings built for the purpose.

The purpose of the writer in this paper has been to collect, so far as possible, such statistics concerning the hospitals of this Worcester District as may be necessary to show:

1. Have we enough, or too many hospitals?
2. What do they cost?
3. What use do we make of them?
4. How can we improve them or their service?

So many subdivisions of these main topics immediately come to mind that rather than clutter up this introduction with a confusing analysis the writer prefers to let the subdivisions develop themselves as they arise.

Our first consideration is naturally the district itself. There are comprised in this Worcester District forty-eight cities and towns with an approximate population of 355,471. According to the last State Medical Society Report, there are 328 members of the Society practicing in this district. There are also a considerable number of physicians who are not members of the society. No attempt has been made to compute their number. These figures show that there is one doctor to about 1083 of population.

The actual square miles of this territory might be of interest but of no practical value in these days of rapid transportation, while the population is important. On the map it is easy to see that this district comprises more than two thirds of the total area of Worcester County.

If any explanation of why this district was chosen for study were necessary, perhaps the best answer would be that it is our district. But more than that this area represents an unusual combination of urban and rural population. It also comprehends within its borders large industrial communities as well as a considerable farming population. Another feature is the remarkably good transportation facilities which make communication between the different sections of this area simple, rapid, and comfortable.

It is well known that the need for physicians and hospitals is greater in industrial communities than in agricultural territories. In this district the industrial population far outnumbers the agricultural but not so much that we can compare our population with such populations as those of Pittsburg or Cleveland for example. In other words, so far as similar studies in other parts of the United States have been made we need to modify our conclusions to fit our own case rather than to attempt to measure exactly our findings by those others.

A factor of importance in this study is to learn whether or not a given population is "hospital broke". To the writer it appears that for ten years or longer our people have accepted the hospitals as a necessity, as the place to go when advised by their medical attendants. Therefore the demand for hospital facilities is greater than may be the case in areas less habituated to hospitals.

STATISTICS FROM OTHER HOSPITAL AREAS

In a volume entitled "First Steps in Organizing a Hospital" Dr. Joseph J. Weber has collected most of the statistics needed for comparison. He shows that for the fifty years since 1873 the growth of hospitals in the United States has been about 4,661 per cent. and the number of beds has increased 2,161 per cent. These figures do not include such institutions as homes for the aged, for children, for the blind or insane, or others of a similar character. With this increase in hospitals the average number of beds per hospital has decreased, owing to the increase in number of the small town and rural hospitals with a comparatively small bed capacity. In 1873 the 149 hospitals, all in large centers, averaged 238 beds per hospital, while today the average is about 111 per hospital. Statistics of so-called active hospitals (meaning those available for acute medical and surgical cases), which give the ratio of hospital beds to the population of the several states and possessions of the United States divulge some interesting information. Selecting a few for illustration, we find Arizona has one bed to each 88 of the population; Alabama one to 384; Arkansas 452; California 905; District of Columbia 53; Georgia 269; Illinois 144; Kansas 183; Kentucky 226; Maine 150; Massachusetts 110; Nevada 79; New Jersey 153; New York 106; Ohio 146; Oregon 87; Pennsylvania 147; Rhode Island 136; So. Carolina 313. The total of the United States and its possessions shows 1 bed to 177 population.

The ratio of beds to population in communities such as New York City, Greater Boston, or Philadelphia may vary greatly from that of their respective states and from the ratio which

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†For record and address of author see "This Week's Issue," page 399.

authorities, in the absence of any measurably scientific determination of the question, rightly regard as the minimum ratio that should prevail if a community is to provide the hospital service which modern needs demand.

RATIO OF BEDS TO POPULATION

In 1912 a study was made by the Commission on Hospitals of the New York State Charitable Aid Association of some 30 or 40 of the smaller hospitals located in New York State. It was found that the ratio of beds to population in these communities was one bed to three hundred of the population; most of these hospitals, however, were asking for more beds. A survey of hospitals in so-called Greater Cleveland made in 1920 showed that the ratio of beds to population was there 1 to 50. In determining this ratio only so-called active hospitals were considered. In New York City, in recent years, the ratio of beds to the population was found to be 1 to 200. The Metropolitan District of Boston with a population of 1,500,000 (Census of 1920) has 140 general and special hospitals with a total of 7,247 beds. This gives a ratio of 4.83 to 1000 of the population. New York and Boston have approximately the same ratio. These varied ratios confirm the statement already made that it is impossible to advance any normal ratio of hospital beds to population. The ratio will probably run higher in urban than in suburban or rural communities, as in the former, hospitals are more readily accessible to a relatively larger number of people. The type of city, moreover, will influence the ratio. The ratio will be found higher in industrial cities, where workers are subject to the hazards of industry and their homes are less suited to the care of the sick than in residential cities.

Housing conditions have a direct bearing upon this ratio. Apartment and rooming houses make greater demands on hospital facilities than private homes or well-to-do communities. People with comfortable homes prefer to shorten their stay in a hospital and convalesce in the more comfortable quarters of their own homes. These latter factors result in a more rapid turnover and reduce the number of beds needed. Seaport cities, railroad centers, both with a large floating population; cities that draw from a large area of the surrounding country, or hospitals with a widely known group of physicians or surgeons—these and other factors increase the demand for beds.

But meager as are the data for estimating the normal ratio, it is undoubtedly fair to say that the burden of proof rests on the community with unsatisfactory health conditions to demonstrate that its hospital facilities are adequate if the proportion of beds is as low as one to 300 inhabitants.

Studies made by insurance companies show that from 5 to 20 per cent. of the sick go to hospitals.

Other studies have demonstrated that many hospitals show only 65 per cent. of their beds used, while a few have over 85 per cent. An annual average taken over any measurable period of time showing 75 per cent. of beds used is considered reasonable. This per cent. of use allows for the proper cleaning and renovating of wards and rooms and gives a moderate excess of beds for emergencies such as accidents, disaster or epidemics.

THE WORCESTER DISTRICT

As has already been stated, there are in this district 48 cities and towns with an approximate population of 355,471. These people are served by something over 328 physicians. In addition there are scattered throughout the district 11 hospitals of bed capacities varying from 18 to 386. The number of beds per hospital, as obtained from the superintendents of the several institutions, is enumerated in Chart No. I.

CHART I

NUMBER OF BEDS PER HOSPITAL IN WORCESTER DISTRICT

	Total	Obstet.
Worcester City Hospital	386	34
St. Vincent's Hospital	250	25
Memorial Hospital	215	30
Hahnemann Hospital	100	25
Fairlawn Hospital	35 or 48*	15
Louis Pasteur Hospital	30	5
Belmont Hospital	180	0
Clinton Hospital Ass'n	85	20
Milford Hospital	55	11
Whitinsville Hospital	18	7
Holden District Hospital	30	10
	1384	182

*Later figures claimed.

These give a total of 1,384 beds, of which 182 are designated as obstetric beds, and since for every obstetric bed there is, of necessity, a bassinette which is counted in the total as a bed, there are 364 beds for obstetric purposes, which, taken from the total number of beds, leaves only 1,020 for general medical and surgical purposes. From these figures we discover that the proportion of beds to the population is 1 bed to 264.08 persons; while the proportion of beds for general use is only 1 bed to 348.5 persons. Both of these proportions are close to the figure of 1 to 300 of the population given above as the limit below which no self-respecting community ought to permit its hospital accommodations to fall.

At the present time there are enough hospital beds in this district when estimated as a whole. But in some sections of the district there is a greater demand for beds than can be supplied. If we were to be visited by another epidemic of influenza such as we had in 1918, we might suffer seriously from a scarcity of hospital beds. In 1918 all of the hospitals were full and a large number of patients had to be treated in an im-

provised hospital in the Fair Grounds buildings. A large proportion of our young men were in the army and we did not have them to provide for, so that our need was so much less than it would be now. A severe epidemic or a great catastrophe like a flood or even a railroad accident of large proportions would very seriously strain our present hospital accommodations. In 1918 the weather was mild and there was little, if any, suffering from lack of proper housing or care. But the weather might not be mild next time.

The demand of the public on the eleven hospitals in this district is shown in some measure by Chart II. These figures represent admissions to the house. Not all of the hospitals maintain out-patient departments; therefore it seemed more representative to take figures from the same type of service in all the hospitals.

CHART II

HOSPITAL ADMISSIONS FOR 1926

	House	Daily Average
Worcester City Hospital	7240	329.88
St. Vincent's Hospital	4778	176
Memorial Hospital	4916	150.9(
Hahnemann Hospital	1496	41
Fairlawn Hospital	1208	
Louis Pasteur Hospital	476	18
Belmont Hospital	648	
Clinton Hospital Ass'n	1259	36.68
Milford Hospital	1572	41
Whitinsville Hospital	916	
Holden Hospital	524	
	25033	

The Worcester City Hospital admitted 7,240 patients in 1926, St. Vincent's 4,778, The Memorial 4,916. These three are mentioned because their total admissions were almost two-thirds the admissions of the eleven hospitals combined. In 1926, 24,707 patients were admitted to the beds of the eleven hospitals. This means that about one out of every fifteen persons in this district entered a hospital for treatment in 1926. It has been called to the writer's attention that a considerable number of people from without the district are treated in our hospitals. There are several towns in the county so situated that they find it more convenient to come to one of the Worcester District Hospitals than to go to a hospital in their own district. For example, Milford, on our border, draws from outside this district; likewise the Clinton Hospital. The writer found some statistics in the reports of The Worcester City and The Memorial Hospitals that gave some information on this point. The City Hospital admitted in 1926, 1,134 persons from other towns and 62 from other states. The Memorial Hospital admitted 118 persons from towns outside this district and 145 persons from other states.

The demand for hospital care from outside our immediate neighborhood is legitimate and has to be reckoned with in making our estimates, and it does not discredit the figures based on our district population. It is reasonably possible that as many, or more, inhabitants of our district have gone elsewhere for treatment.

As stated previously, from investigations made by insurance companies and from other sources, one writer claims that from five to twenty per cent. of the sick go to hospitals. The per cent. varies, as might be expected according to the type of homes, the conveniences for caring for a sick person, and the surroundings of the different groups studied.

Our figure of one out of fifteen persons, or about seven per cent. of the population of the district in hospitals, is probably not far from the average of other localities. Of course we cannot estimate the number of sick people in any year and therefore cannot any more than approximate the per cent. of the total of sick who entered our hospitals.

THE PER CENT. OF HOSPITAL BED CAPACITY USED

The total hospital bed capacity of this district, as already stated is 1,384. The next figure of interest is the per cent. of these beds used.† The writer found that in 1926 per cents. as shown on Chart III. These figures were estimated from figures taken from hospital reports or from personal communications. In some instances the two sets of figures taken from the same hospital report for estimating the per cent. have not checked up the same. In such cases the writer has used his judgment as to the probably correct figure. It so happened that in every instance the larger figure has been used.

CHART III

PER CENT. OF BEDS OCCUPIED IN 1926

	Per Cent.
Worcester City Hospital	85
St. Vincent's Hospital	64 to 70
Memorial Hospital	75
Hahnemann Hospital	41 to 54
Fairlawn Hospital	109
Louis Pasteur Hospital	
Belmont Hospital	32 or 87
Belmont Hospital, Putnam Ward	100
Clinton Hospital Ass'n	43 to 66
Milford Hospital	74
Whitinsville Hospital	44
Holden District Hospital	143*
	907
Average	80%

*Corrected report makes 80 to 90%.

It will be observed that two hospitals ran over capacity. Both of them are small, nearly new hospitals, but none the less popular. The Bel-

†The writer is indebted to Miss Lucia L. Jacquith for help in working out the per cents. of beds occupied, for checking up his figures and for many valuable suggestions.

mont Hospital gives two sets of figures. The Putnam or T.B. Ward is always full to capacity, but figures for the contagious wards have to be considered as approximate. The total number of beds possible to use is 125, but not more than 50 or 55 of these are kept ready for use or supposed to be used except during some severe epidemic. The writer thinks that the figures for the Hahnemann Hospital are too low; but they were taken from the 1926 annual report. Since the additions to the hospital were finished, it is probable that the per cent. of bed capacity occupied would be at least 70%. The *average* of bed capacity used in this district, according to the figures given, was 80%.

It is very generally considered that an annual 75% of bed capacity used is all that ought to be expected of any hospital of the active type, and is about all the average hospital can take care of and keep its equipment, rooms, beds, surgery and working force in good condition.

Among the questions which the writer asked most of the superintendents was, "What besides more money does your hospital most need?" Several were specific as to the particular buildings and type of beds they require. One wants more obstetric beds and a better type of private rooms for nurses; and in a new building he would recommend the following:—more private and semi-private rooms and a male medical ward. Practically all want more beds or accommodations for a larger work. These recognized needs will probably lead to accomplishment before many years; and it fairly well answers the question—have we sufficient hospital accommodations? If we have not now, we are in the way of obtaining them.

WHAT DO THESE HOSPITALS COST?

This is probably the least interesting of my four subdivisions either to the public or to the average physician. It is the trustees and superintendents of the several institutions who worry over the cost.

CHART IV

TOTAL PROPERTY VALUE OF NINE HOSPITALS REPORTED TO DEPARTMENT OF PUBLIC WELFARE—1926

*Worcester City Hospital, Worcester	$1,584,657.01
St. Vincent's Hospital, Worcester	700,000.00
Memorial Hospital, Worcester	1,087,893.75
Hahnemann Hospital, Worcester	604,125.00
Fairlawn Hospital, Worcester	197,412.52
Louis Pasteur Hospital, Worcester	39,469.78
*Belmont Hospital, Worcester	537,521.70
Clinton Hospital Ass'n, Clinton	358,472.28
Milford Hospital, Milford	323,897.75
Whitinsville Hospital, Northbridge	76,775.00
Holden District Hospital, Holden	59,964.49
	$5,570,189.28

*City Auditor's Report 1926.

Chart IV gives the total valuations of the eleven hospitals. Except for the two municipal hospitals of Worcester, these estimates were obtained from the reports of the Massachusetts Department of Public Welfare for 1926. These reports are required by the state from all charitable institutions that do not pay a tax, except municipal institutions. The figures for the latter were found in the City Auditor's Report for 1926.

The total valuation of the eleven hospitals, according to these estimates, is $5,570,189. Some doubt has been expressed to the writer as to the accuracy of these figures, whether they represent value, outlay or replacement cost. So far as this discussion is concerned, they are of only passing interest. More important are the figures of the cost of maintenance of these hospitals as given in their annual reports for 1926. The total amount was found to be $1,487,569. In at least three instances the figures given included the expenses of out-patient departments as well as house patients.

CHART V

CURRENT EXPENDITURES—1926 REPORTED TO DEPARTMENT OF PUBLIC WELFARE

Worcester City Hospital	$546,484.83
St. Vincent's Hospital	185,178.38
Memorial Hospital	252,689.54
Hahnemann Hospital	70,517.87
Fairlawn Hospital	64,521.08
Louis Pasteur Hospital	27,668.40
Belmont Hospital	170,390.79
Clinton Hospital Ass'n	60,735.69
Milford Hospital	59,723.09
Whitinsville Hospital	21,281.64
Holden District Hospital	28,378.40
	$1,487,569.71

It might be of interest to compare the work accomplished in the individual hospitals, as represented by the number of patients and the cost of maintenance. But the hospitals vary so much in type that such figures would not be of any practical value. Some of them maintain large out-patient departments; some have social and welfare workers on salaries; some maintain an occupational therapy department; some do a great deal of accident work; while others confine their efforts strictly to the care of bed cases, so that any such comparison would be unfair.

As a fact of some interest, the writer found that, comparing the total population of the district and the total outlay, the per capita cost for these hospitals is $4.18, or say, less than $4.20 per person per year is required to carry on the work of eleven hospitals.

A natural side question of cost is, "How are funds raised?" This offers an interesting survey of all the varied methods for getting money for charitable purposes. From an economic study point of view it offers a chance for a student to discuss the relative methods and tell us whether we are shiftless or economically wasteful in the means used to get our money.

WHAT USE DO WE MAKE OF THEM?

It has already been stated that at one time or another, during the year 1926, one out of every fifteen of our population applied for house treatment at one of these hospitals. That in itself answers the question—what use do the people make of them. That fact also justified their existence. But, outside of their primary use as places where the sick can be cared for, hospitals have other purposes which we physicians are in duty bound to consider and to develop.

The writer recalls a statement of the elder Cheever to the effect that a physician is always a teacher. He should teach his patients; he should teach nurses and those who care for the sick; and the older physicians should teach the younger ones. In a larger public service way, he should teach and lead the public in health and sanitary measures.

It is difficult to measure any such service as is suggested by this dictum of Dr. Cheever's, but we can review whatever of service we can recall that has been given or attempted in our time; and we can discuss freely our successes or failures.

As public servants the hospitals in this district rank high. All of the larger ones fulfill the requirements of the College of Surgeons and are Class A hospitals. The smaller ones come as near the requirements as it is possible for them under the conditions of their endowments and size. They live up to the essentials of housing, nursing and intelligent, conscientious professional care of the sick. These eleven hospitals as a whole supply the needs of this district for medical and surgical service. They co-öperate with other charities such as the district nursing societies, social service workers, cancer clinics and many other separate organizations which have to turn frequently to the hospitals to finish their work. In these and other ways they do their legitimate work.

But it is on the negative side of this question that the writer considers that there is chance for criticism. Do these hospitals do their duty as teachers?

A hospital is in its largest sense a spirit. A spirit to do good for the unfortunates who are sick. Primarily it was a charitable spirit,—charity in its lesser but commonly meant sense. At first they were for the poor only, but custom and demand have broadened their work until today all classes are treated in hospitals. The spirit is now that of service to the whole community at need. Most hospitals today are the spirit of the whole community made manifest in service of the highest order. Upon us physicians is laid the task of developing that spirit for the greatest good. We fail if we do not teach as well as cure.

The larger hospitals in this district maintain excellent training schools for nurses. Little, if any, criticism can be aimed at them. We may not approve of over much teaching of medicine to nurses. We may think nursing the sick is more important as a training than studying the diseases of the nervous system. We may think two years long enough for a nurse's training. But as a body we have allowed the required curricula for training schools to be mapped out by those who do not see our side of the question, and, so far, no one of us—or any large group of us—has been enough interested to attempt seriously to interfere with the tendency to make half baked M.D.'s out of nurses.

The wealth of material for teaching in our hospitals has been almost wholly neglected for teaching purposes—so far as the large portion of our numbers is concerned. The nurses and internes get more out of it than any others. The visiting staffs do some valuable study on their own cases and in a sketchy way pick up some information from other services. Further than that only little use is made of most of the material.

A brief review of most of the attempts to teach the practitioners of this district may not be amiss. Sometime about 1897, Dr. Homer Gage announced that he would give a course in clinical surgery to as many men as desired to attend. A small fee was charged, the money to be used to buy surgical instruments. Not more than a dozen or fifteen men attended the clinic and they were mostly from out of town. The exercises were well conducted and interesting, as far as they went. The writer recalls that they were mostly, if not all, operative clinics; personally he would have preferred bedside teaching and diagnostic examinations of the patients before operation. But we were young in aseptic surgery then and the operation was the thing. Today the same surgeon would, without doubt, go over the history very carefully with us, examine the patient very closely, and then add the laboratory findings to our own observations and very likely decide against operative interference. Our point of view changes with years.

The next serious attempt at clinical teaching was sometime in early 1900. The Society's secretary prevailed upon all of the men who held hospital appointments to agree to hold clinics, when they were on duty, on the days of the Medical Society's meetings. A carefully prepared schedule of the hospitals and services and men on duty for the entire year was prepared and distributed to all of the members of the Society. The first one or two days the clinics were fairly well attended. The members of the staffs did their part, but after the third meeting the Secretary began to receive complaints that no one came to the clinics and they were discontinued. At that time transportation was not the simple matter it is now. Those who drove in with horses found the drive long and in some instances men from Barre, Warren, the Brookfields, and Clinton considered it a good deal of a task to make calls and get in here by ten o'clock. The trolley and train service was little,

if any, more satisfactory. A few other less ambitious attempts have been made to get members to attend clinics.

A few years ago, some of the hospitals began to hold evening clinical meetings, which were well attended. During the presidency of Dr. F. H. Baker we began to hold our meetings at the different hospitals in and out of Worcester. These seemed to be most satisfactory and with the dinners, which the hospitals provided, served to bring the members together in a most desirable way. During the last two years these hospital clinics have been fewer and in their places men of prominence in medicine have talked to us on subjects concerning which they are recognized as authorities. These meetings have been very largely attended and have been valuable and instructive, but if we continue to substitute didactic teaching for clinical, the hospital clinical meetings will be abandoned once more, unless strenuous efforts are made to resuscitate them. Lest the writer may leave this subject of Society meetings with the impression that he favors hospital meetings wholly, he wishes to state that he considers that there are many men in this district who are not connected with any hospital who are such careful scientific workers that it is our loss that they are not called on to prepare papers for our meetings.

As briefly as he can state it, the writer considers that the District Medical Society is for the benefit of its members, and the greatest benefit is acquired by participating in its meetings; hence the more the programs are the work of the members, the more benefit they receive.

While he discusses the sins of omission of our hospitals, the writer hopes that it is clearly understood that he includes himself in this arraignment; that he has reviewed the years of his hospital service and found himself among those whom he has weighed and found wanting. His excuse is probably that of many others in a similar position, that it is easy to carry on each day's work as it arises, but it requires an outside onlooker to see where we fall short of our best. We have often not met the need of the out-of-town or in-town physicians who have referred patients to us expecting something more in the line of investigation than they were able to give the case themselves. As one of our members from a manufacturing town in this district said to the writer, "We country doctors look upon you hospital men as wearing a sort of medical halo, but too often you have not justified the halo". The pity is, 'tis true.

A criticism which is not new with the writer and that cannot be gainsaid is that no serious intensive studies are carried on in our hospitals either by clinicians or laboratory workers. There is no concerted action under a chief who may be competent to direct, even if not himself an investigator. The writer thinks that in most of the hospitals there is sufficient harmony among members of the staff for the practical co-ördinating of the several departments, but in the larger hospitals, where advanced original work along all lines of medical endeavor ought to be carried on, little, if anything, is heard of it. We are busy and we are content to travel the rutted paths of tradition and to follow others rather than to blaze new trails. We are more inclined to seek after the newer methods for cure than for prevention. There is not enough coöperation between the laboratories and the wards. The laboratories are equipped to do all technical laboratory work desired and they keep up to the minute along such lines, but how many are making any original investigations? Yet we have the laboratories, the material and the money if needed. To the writer it seems that there is no sufficient excuse for not doing such work when we spend about a million and a half dollars a year for the sick and, not counting the out-patient department, we admit about twenty five thousand patients to our hospitals. A few thousands of these funds could be well spent under proper direction for a combined laboratory clinical investigation work. If no great discoveries come of it, at least the attempt will have been made and our minds stimulated to look beyond the routine of daily medical practice. While discussing some of our sins of omission the writer has intentionally suggested what he considers to be the remedy, thus anticipating the fourth and last section of this paper —How can we improve them or their service.

This offers the writer a long waited for opportunity to tell the staffs, the superintendents and the trustees—above all the trustees—how to run a hospital. After thirty years as boy and man on a hospital staff the writer has yet to meet the member of a staff who was not certain that he could run his hospital better than the trustees were doing it. The writer has been guilty sometimes of telling them how to do it. Sometimes he has been handled with gloves, and at other times he has been very thoroughly squelched. So that, now that he has galloped valiantly up to the hurdle, his Pegasus refuses to take the jump. We are never quite free ourselves of that feeling of timidity which our schoolmasters created in our souls although years and association taught us that they were human and as fallible as ourselves.

The writer offers a few suggestions for the staffs of our hospitals and for the profession at large which have come to him as he gathered the material for this paper and came to realize how much a part of our professional lives our hospitals have become. He realized more than ever how necessary to the welfare of the community they are, and how necessary it is for the whole medical profession to feel that they have a stake in them and whether on the staffs or not, we should all make an effort to maintain intimate relations with one or two of them.

It is impossible to study the hospital situation in this district and not raise the question of

overlapping or duplication of effort. There probably is more or less overlapping of service especially in the City of Worcester and the towns on its immediate border. But such overlapping as exists is not wasted effort nor undesirable. So long as there is a gentlemanly spirit of rivalry between the different staffs, there will be more or less encroaching on each other's territory. But it is always a stimulus to better work to know that you must mind your Ps and Qs or the other fellow will put one over on you. There is no serious likelihood of much duplication of effort or harmful rivalry. If we consider the origins of the several hospitals, we find that two were founded largely by the impulse of race and religion; one was a medical schism impulse; two others were the endowment impulse, and one of these had to be taken up by the city by the terms of the will. These various factors determine more or less the patronage the several hospitals will receive, and tend to decrease overlapping of effort. Likewise the same factors stimulate the energies of the sponsors of the institutions to maintain what they have begun. More effort, whether of money or service, is exerted than would be the case if it were all directed toward one or two large institutions for which there was not the same personal feeling of possession. It is a good thing for members of the medical profession to have some hospital connections and in the present hospital units that is possible for more men than would be likely in one large institution, and more men now hold responsible positions in the small units.

But while these several units carry on separately, there are various ways in which co-ördination of effort might be made valuable and to the advantage of all. Some of these eleven hospitals maintain complete and expensive laboratories equipped with x-ray machines, metabolism outfits, chemical and pathological laboratories and other modern methods for detecting disease; while many other hospitals are only equipped to do the commonly needed laboratory work. If some arrangement could be made between the large hospitals and the smaller ones to do the special laboratory work needed, it would be advantageous to all. A director of the laboratory capable of original investigation work might be made possible and with the trained technicians and other equipment every possible use could be made of the material submitted.

There is room for improvement of the relations between the members of our hospital staffs and the men not on any staff but who often send us our cases. Too frequently the man inside ignores the rights of the man outside. He ignores his right not only to his patient but to any part in, and study of, the case. It would be better for both physicians and the patient if they could study the case together, talking it over, making suggestions and getting together for their own information and the patient's welfare.

Too often the man outside shirks all responsibility for the case once he has sent it into the hospital. He forgets that he still is, in some measure, responsible for the patient's welfare and that he is bound to give what information he can concerning the case. He should be a more frequent visitor at the hospital and should be made more welcome.

Teaching does not need to be formal and at stated times. Often the incidental remarks during a morning's rounds or during an operation may be more worthwhile than a prepared paper. Recently the writer had occasion to attend an operation on one of his patients away from his own hospital. The surgeon operating very courteously made a place for him near the operating table and talked interestingly of his technique, the hazards of the operation and such cases in general, and before the writer was aware two hours had passed. As he left that hospital the writer realized that he had many times gone farther, paid more, and learned less. He wondered why he did not visit around oftener.

The members of a hospital staff are, because of their positions, in duty bound to contribute to the medical literature of their locality, either by means of papers prepared and read before such societies as this, or papers published in their state Medical Journal. In their early years of practice many men are eager to write and publish, but later, as professional work takes more and more time, they cease writing. Yet in their mature years it would seem that their ideas are much more worth our attention. The writer suggests that the trustees of our hospitals might very properly require at least one original paper per year worked up from hospital material by all senior members of their staffs, and at least one every two years from the junior members. There should be a penalty attached for failure to fulfill this requirement. The writer may very properly be accused of putting ideas into the trustees' heads after he is out of their jurisdiction.

FINALLY

The hospitals of this district represent the growth of the hospital spirit in forty years. This spirit was fostered and guided by men of wisdom and foresight. One hospital led to another and today these eleven hospitals, large and small, make manifest that spirit of service, called charity, which "suffereth long and is kind." The first generation of wise leaders has passed away and today we are guided by the second generation. The writer likes to think that the first group of men who blazed the hospital trail which we follow were not wiser than they knew but were gifted to foresee, in a broad way, the possible development of the hospital spirit which they, many of them, lived to see possess the entire community. Their work goes

on, aided and encouraged by many thousands of well-wishers in this district. But it is the duty and privilege of the medical profession of this district to continue to be always alert and watchful, to teach and guide this community spirit along the path of learned, scientific, modern, but above all humane medicine.

SUMMARY OF IMPORTANT POINTS

The writer has shown that there are eleven well equipped hospitals in this Worcester District.

That out of a population of about three hundred and fifty thousand one out of fifteen are admitted to our hospitals each year.

That although we have not enough beds at present, it is probable that enough will be supplied in the near future.

That an average of 80% of our beds are occupied each year.

That it costs about $4.20 per capita to maintain our hospitals each year.

That more use should be made of this hospital material for teaching.

That there should be a closer communion between the staffs and the medical profession at large.

SOME OBSERVATIONS ON THE DIAGNOSIS OF MILD CASES OF POLIOMYELITIS

BY ELI FRIEDMAN, M.D.*

SINCE the severe epidemic of poliomyelitis in 1916, every summer has brought its toll of new victims. Last summer there were a great many cases, exceeded in number only during the epidemic of 1916. This year sporadic cases have already been reported. A brief discussion of the diagnosis of this disease is therefore important.

I have chosen the mild case for discussion because, from the point of view of diagnosis, it is the one particularly deserving of attention. In the typical case, severe or even moderate, where after a brief febrile period, definite paralysis appears, the diagnosis is unfortunately only too apparent. In the abortive type, the diagnosis, important as it may be from the epidemiological point of view, cannot be established with any degree of certainty and, as far as the patient is concerned, it matters but little whether a definite diagnosis is made. In the mild case, however, the diagnosis, though often overlooked, can be definitely established and very often serious consequences result when it is not made in time.

By the term "mild case" I have in mind that condition where the patient, after a short febrile period, is left with paralysis or only paresis of a single muscle or small group of muscles. The muscles most commonly involved in the mild case are the deltoids in the upper extremities and the quadriceps extensor femoris in the lower extremities. The muscles of the trunk and lower legs are also occasionally involved.

To superficial observation the patient may seem normal. The child apparently moves all the extremities and to all appearances seems to have recovered completely from a simple infection. Careful examination, however, reveals that where the deltoid is involved the child is able to flex and extend the fingers, wrist, and forearms, but is unable to abduct the arm without rotation of the scapula, and even if he is able to abduct the arm, the motion is performed with very little strength. Similarly, when there is involvement of the quadriceps extensor femoris, the only signs present are either weakness of extension of the lower leg with diminution of the knee jerk, or complete loss of extension with absence of the knee jerk. Paralysis or weakness of the trunk muscles will show unilateral bulging of the abdomen when an attempt is made to sit up from the recumbent position. An attempt to raise the head while lying on the abdomen will demonstrate any abnormalities in the spinal muscles. Simple tests easily demonstrate weakness of muscles such as the peroneals, tibialis anticus and the posterior tibial group.

Where the co-öperation of the child can be secured, even slight degrees of weakness can be fairly accurately determined by the use of the spring balance test adopted by Lovett and Martin. The child is instructed to use all the strength of a muscle or group of muscles suspected of weakness, in pulling against a spring balance. The strength of this pull is recorded in pounds, and then carefully compared with the strength of a similar muscle or group of muscles on the opposite side of the body. A little ingenuity in the use of the spring balance will make it serviceable in testing the strength of almost any muscle. Thus weakness too slight to show loss of function in performing an ordinary task could readily be demonstrated by the use of the spring balance.

If the diagnosis is made early and proper treatment instituted, the results are excellent. When there is only paresis, rest of the affected part and particularly avoidance of overfatigue of the weak muscles is most important. Mild massage will further improve the nutrition of the muscle and will invariably bring about gradual improvement so that in the course of a comparatively short time the function of the affected part is quite normal again. Where there

*For record and address of author see "This Week's Issue," page 399.

is definite paralysis, rest and proper orthopedic appliances are indicated until there is enough recovery to allow graduated exercises.

However, when the diagnosis is overlooked, there is an entirely different picture. The child is allowed to run around as if there were nothing wrong. The result is that a muscle which was only partly involved becomes stretched and overfatigued and, instead of being only paretic, becomes paralyzed. Several cases have come to my attention where loss of motion of a part was not noticed until the child had been allowed to run around for a week or longer after illness. Where the muscles of the trunk are involved, even complete paralysis is often unnoticed until some very apparent postural deformity develops later. According to Hibbs, most cases of adolescent scoliosis are the result of hitherto unrecognized poliomyelitis.

To illustrate how the diagnosis is frequently overlooked, I will cite very briefly the history of the following two cases:

CASE 1. M. C., female child seven years of age. *Family history* and *past history* were negative. *Present illness:* The onset of the disease was marked by fever, vomiting, and slight headache. The family physician found the tonsils enlarged and reddened, and made a diagnosis of tonsillitis. The child was allowed to leave the bed on the fourth day after the onset and to go back to school on the fifth day. A week later, or twelve days after the onset of the disease, the mother noticed that the child walked with a slight limp in the left leg.

Physical examination revealed definite weakness of the quadriceps extensor femoris. The knee jerk was absent on the affected side and child was unable to hold lower leg in extension without support. A lumbar puncture showed a cell count of twenty cells per cubic millimeter with 90% lymphocytes and the globulin was strongly positive.

CASE 2. F. L., male child five years of age. *Family history* and *past history* were negative. *Present illness:* The onset of the disease was marked by fever, headache, and gastro-intestinal upset. The case was diagnosed as indigestion, and free catharsis and an antipyretic were prescribed by the family physician. The child was allowed out of bed in a few days. Three weeks later, the mother noticed that child was dragging the right foot.

Physical examination, in this case, showed complete foot drop with practically total paralysis of the peroneals and tibialis anticus.

The fact that at first there was no apparent disability in either of the above cases shows that the affected muscles were probably functioning weakly, and later became completely paralyzed only after they had been subjected to severe strain.

If, in spite of a careful examination, the diagnosis is still doubtful, a lumbar puncture is always advisable. It must be remembered, however, that in order to get any definite information from the spinal fluid, the lumbar puncture must be done fairly early after the onset of the disease. When done late, it loses practically all its value as a diagnostic measure.

A study of two hundred and forty spinal fluids taken from 168 patients at the South Department of the Boston City Hospital for diagnostic or therapeutic purposes shows that the spinal fluid returns to normal quite rapidly with convalescence. The increased pressure returns to normal as soon as the febrile period ends. The globulin test is distinctly positive only in the first few weeks and then becomes doubtful. The sugar content of the spinal fluid varies but slightly on the different days of the disease. The average amount of sugar, as shown by a quantitative determination of fifty fluids, is 65 milligrams per 100 cubic centimeters, and is of particular importance in differentiating the fluid of poliomyelitis from the fluid of tuberculous meningitis, which seldom has a sugar content of over thirty milligrams per 100 cubic centimeters. The cell count, consisting mostly of lymphocytes, is rather low in the mild case, averaging about 50 per cubic millimeter, and returns to normal quite rapidly.

The accompanying table shows, at a glance, the average cell count on the different days of the disease in all types of cases, including the severe as well as the mild case.

TABLE

Day of disease	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19-27
No. of cases	2	4	20	34	27	20	20	24	18	6	11	11	4	6	5	5	4	3	16
Average cell count	166	184	130	108	70	37	40	31	31	15	14	12	5	5	6	8	8	2	3

It is very obvious from the above table that, if we are to get any help from the spinal fluid examination, the lumbar puncture should be done within the first nine days after the onset of the disease. After this length of time, a lumbar puncture is not indicated either from a therapeutic or diagnostic point of view, and the diagnosis must then be made on the history and careful examination.

SUMMARY AND CONCLUSIONS

Every febrile disturbance in children, when accompanied by such symptoms as headache, stiff neck, spinal tenderness, and tenderness of the extremities, regardless of how mild, should, in the summer months, be looked upon with suspicion.

An examination of the spinal fluid is of great aid in doubtful cases, provided the lumbar puncture is made early, never any later than the ninth day of the disease.

A careful examination of every muscle group for paralysis or paresis should, in times of epidemic, be made after every febrile disturbance, before the child is discharged as well.

THE FIELD AND FUNCTIONS OF THE PRIVATE HEALTH ORGANIZATION*

BY DONALD B. ARMSTRONG, M.D.†

THE field and functions of a private health organization, or in fact of any private organization, are fairly clear in our democracy as it is organized today, and have in the past been frequently and perhaps tiresomely stated and restated. In fact, current comments upon the inter-relations of private organizations with official governmental machinery differ not radically from Platonian discussions of corresponding phases of Grecian democracy. Yet, because human nature has apparently changed very little, and because confusion continuously results from the conflict between different types of minds approaching this problem, reiteration and restatement may be desirable.

The private organization as a part of community machinery has, admittedly on the part of most people, several possible functions. Within the last two or three decades, these functions and services have perhaps been more definitely experimented with and clearly defined in the health field than in any other phase of community organization. In the first place, it is generally admitted that the *initiation* of certain types of activity is, or at least has been in the past, distinctly a private obligation. The start made by Dr. Trudeau in the sanatorium care of tuberculosis patients in the Adirondacks was characteristically a private venture for which it would have been difficult to secure public funds at that time. *Research* and *investigation* are other fields that have, historically at least, been largely exploited through private sources. It would have been difficult, if not impossible, to substitute tax-payer money for the resources of a Rockefeller in the investigations in epidemiology, immunology and disease etiology associated with his name. The concrete *demonstration* of the practicability of certain procedures is another cause to which private funds and unofficial organizations have contributed. Demonstrations under private auspices of malaria control in the South, of tuberculosis control in urban and other communities, of adequate child health machinery in city and county units have paved the way for the subsequent establishment of routine public facilities. *Observation*—the establishment of continuing private machinery for the furnishing of a check upon public operations, through voluntary organizations or citizens' committees of one type or another, is held by most people to be a desirable or, at any rate, legitimate function of private agencies.

Futher, *education* of the public at large has been in the past and will continue to be an important function of private health organization. Here the objects are not only an informed public opinion concerning personal health practices, but also a public attitude that will guarantee adequate support, through appropriations and otherwise, for public services and facilities. A well-organized and properly orientated private health organization can do a tremendous amount in building public sentiment for official public health work and in upholding the hands of the official leaders. On the educational side, where public funds are lacking, it can advantageously supplement public facilities, filling in such gaps as may subsequently be met from public resources. An example of this type is the Metropolitan Life Insurance Company, distinctly a private voluntary and co-öperative association, supplying certain educational materials such as literature, films, posters, campaign assistance, etc., to the health authorities for co-ördinated use by them in programs carried out locally under their leadership.

Another very important function of private agencies, and one which has not always been recognized is that of *transference*. It is generally appreciated that the routine health adminstrative and service needs of the community should usually be met through official or public responsibility. Any other attitude, in theory at least, would seem to be inconsistent with our whole democratic plan. If a service must first, for practical or expedient reasons, be initiated by a private agency; if a preliminary private investigation is an essential prerequisite to a public service; if a demonstration under private auspices must first be made, and even if certain phases of a particular program, especially on the popular education side, must for the time being be perpetuated on a basis of private responsibility, yet it is ordinarily a privilege and duty of the private agency to transfer to public authority and to public responsibility the practical service when once established, and when certain conditions have been met.

What are the conditions that justify and in fact obligate a transference of a practical health service from private to public auspices for supervision or actual operation or both? Certainly, one consideration is when the worth of the service has been demonstrated, together with its difficulties and limitations. Another factor justifying the transference is the creation of a public opinion convinced of the value of the service. A reasonable assurance of the appropriation from public sources of adequate funds for the maintenance of the service is another consideration. The fair assurance of offi-

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†For record and address of author see "This Week's Issue," page 399.

cial acceptance of the responsibility and of official leadership in continuing the activity is a further consideration. Many would add a reasonable assurance that the perpetuation of the service on an adequate basis is probable. Of course, it is not always possible to be logical and consistent. In considering the absorption of practical service by public agencies, there are sometimes circumstances which justify the transference of a local activity to full public responsibility even though completely adequate funds may not be in sight. It has been argued by many that it is sometimes necessary deliberately to overload the creaking machinery of the community, thereby disclosing to the community consciousness the weakness of its own machinery, and thereby, consequently, forcing the necessary repairs and visualizing the necessity for revised procedures, adequate measures and appropriations, and competent personnel.

It is possible to find many examples of this transference in process of consummation. Take the story of tuberculosis. Efforts at prevention and treatment were originally of a private character in this country. The initial organization stimulus was almost one hundred per cent. private. I suppose that the investigative and research aspects are still seventy-five per cent. private. Much of the legislative work for the control of the disease, or at any rate the initiative in this regard, is still in private hands. A fairly substantial proportion of the distinctively preventive educational program is still in the hands of private agencies, though more and more public health authorities are helping to meet these phases of the problem. On the other hand, public sanitation, in so far as it applies to tuberculosis prevention and control, clinical machinery for the detection of the disease, and institutional equipment for the treatment of tuberculosis, have now largely become public functions, the transference in this regard approaching one hundred per cent. in the public direction.

Of course, it is not likely, even in our system of democratic community organization, that *all* public health work will ever be carried out through public resources. Many of the needs of the industrial age group alone will be met, perhaps to an even increasing degree in the future, through the channels of private business. It seems probable that certain civic groups will, for an indefinite period of time, continue to carry certain responsibilities. After all, the problem is to get experienced, trained, intelligent leadership into community activities. This has probably always been the principal problem of democracy and unfortunately has never been solved, either by the Greeks or in succeeding experiments. It will be remembered that even Plato, with his magnificent conception for the selection of leaders in public life, failed rather dismally when given an opportunity to translate the vision of the Republic into practical terms.

The future may see substantial changes in the allocation of functions. On the one hand, it appears to be increasingly easy to get public funds for certain types of research activities, so that private service may gradually be relieved, to some extent at least, of this previously almost exclusive obligation. On the other hand, it may always be that private agencies will do certain things best, even in the field of practical service. Surely, for some time to come, in the public health field at least, they are going to have a lot to do with popular health education. It seems probable that there are several *potential* phases of health education that will need private sponsorship, at least in their experimental phases. Consider, for example, the glaring necessity today for private individual medical guidance. Who is to tell the average citizen where to get a doctor, how to select a reliable physician, how to find a specialist, the kind of doctor or specialist he needs, where to get a periodic health examination, what physician is especially interested in the immunization of pre-school children against diphtheria, etc.? National agencies, through correspondence service such as the American Medical Association (or the Metropolitan Life Insurance Company), can really accomplish very little in this regard, for it is a local problem requiring local service and leadership. Who is going to do it locally? Is it a job for the health department? Possibly so, but it would appear to be more an obligation and an opportunity of the local medical organization, the county medical society, a private organization, seizing this chance to perform a community service and to put its own house in order. This, no doubt, should be closely linked with and guided by the public health officials, but it appears to be rather distinctly at this time a channel of service for private operation.

How can the health officer best use these private facilities? Well, he will of course call upon them when necessary to do or to aid in doing such *experimental activities* as may be considered prerequisite to public support for practical service. When the late Dr. Voux of Pittsburgh wanted scientific data to support his campaign for pneumonia control through isolation, he turned to the Carnegie Institute and other agencies with research facilities. He will also use these private facilities to fill in the gaps in his *health educational program,* and can legitimately, in the opinion of the writer, employ the co-öperation of private agencies, including business and commercial channels, in reaching the great masses of people. In state and local communities many health officers have advantageously used the very extensive contact machinery of insurance companies to this end. He will certainly foster and develop the co-öperation of the physician and of private medical so-

cieties in furnishing for the people of his community guidance toward sound medicine and away from quackery and fraud. Finally, and perhaps most important of all, he will command the confidence of the private agencies, and will utilize them to the full in the *creation of a public opinion* that will adequately back his own expanding program, that will give him sympathetic support and assure him *adequate public appropriations* for his work. To this particular end, he will recognize the desirability of maintaining a fairly clear-cut line of division between the private agency and his own organization. Too complete an absorption into his own machinery, too complete an extension of his own domination and control, tend to vitiate the advantages that may be derived from the backing, before appropriating bodies, and in the eyes of the public, of a properly co-ördinated but distinctly separate, strong, highly respected, supporting private movement.

From the point of view of community service and community welfare, undoubtedly the greatest need, the chief essential, is an integration of all the public health services of the community, with their co-ördination under an adequate leadership. This assures a harmony of purpose, and a centralized control, that should still admit of a sufficient variety of effort to be interest stimulating. It seems obvious that this centralized control, this supervision, at least of an advisory character, should be official. The authority and the legal responsibility are vested in the public officials—a consideration of peculiar importance in connection with one of the basic factors of health service, namely, the control of transmittable disease. This, involving, as it has, the conferment upon health authorities of extraordinary police powers, not conceivably to be delegated to private authority, makes inevitable the recognition of public responsibility and direction for a basic and extensive portion of the whole community health program. And after all, when one considers the variety, scope and magnitude of the activities that constitute the nucleus of health services now being developed under official auspices in well organized communities—the divisions of the typical health department for sanitation, vital statistics, communicable disease control, hospitalization, infant and child health, public education, etc.,—one realizes that the private, even though autonomous, health activities on the periphery are, quantitatively at least, of relatively less importance, and fit logically about the official organization at a "center of gravity".

With this synthesis of community health energies, the question as to where the funds come from that underwrite a specific activity becomes a minor one. For example, milk supervision in a typical community is, and should be, a public service. Yet fortunate and exceptional is the community that has facilities for supplementing this practical service with further research on milk control, as, for instance, on the efficiency of the pasteurization technique. However, it does not matter very much if this research is carried out under private auspices so long as it is effectively related to the public service and so long as the results that may be derived are assured practical application under public auspices. Further, is it important whether all of the educational work in this community about the necessity for clean milk or about the desirability of drinking more milk is carried out by the health department, or whether this responsibility is shared by a private agency, so long as the integration and official direction of the service are assured?

It is not inconceivable that in certain directions the tendency for health departments to assume the responsibility for the actual operation of practical service may even experience a temporary, if not permanent, backward swing in the direction of private operation, at least until greater stability of personnel and freedom from political interference with public office are assured. Communities have for a long time admitted that garbage collection contracts, for instance, could legitimately be made with private concerns, so long as the public supervision was there, and the public sanitary requirements were met. It is not impossible that municipal authorities, *once assured a guaranteed control,* may find it feasible and advantageous to "farm out" more of their services to properly supervised and co-ördinated private agencies such as, for instance, in the field of public health nursing where a tendency in this direction is believed by some already to exist. *Private operation* under *public control* is not a new development in the evolution of democratic experimentation.

Certainly, so long as private organizations develop or have conferred upon them important operations, they should, under any and all circumstances, meet certain requirements and avoid certain not altogether uncommon pitfalls. Surely, the private organization should think of itself as an assisting agency. It should recognize and encourage official leadership. It should endeavor, so far as is possible, to bridge the gaps and sags incidental to changes in voluntary leadership and fluctuations in individual enthusiasms. In the popularization of its program, it should not underestimate or depreciate the importance of the scientific background for its work. Such an over-simplification may have unfortunate public reactions later when subsequent developments in the program necessitate larger appropriations and higher degrees of patience than might have been popularly anticipated from the earlier propaganda. The private organization should recognize the necessity for an adequate accounting of its funds. After all, whether money for public health work comes to private agencies from benefactors or to public agencies through taxes, the partial or the universal procedure taps the same reservoir.

Finally, the private organization should avoid making an impression that it possesses a monopoly in the accomplishment of a desired result. It is certainly offensive to those officially and centrally responsible for the welfare of the community to feel that volunteer aids believe that they can "make a better shoe than the shoemaker".

It is fundamentally important to have the public, as citizens and taxpayers, familiar with, fully cognizant of, and willing to meet their own individual and collective needs. It is important for them to realize the necessity for having these needs met in a co-ördinated way. It is important for the community to use all of its available resources, public and private, to these ends. Finally, it is basic that the community, through its official representatives, assume the responsibility, through the Health Council device or otherwise, for effecting such a synthesis of effort. This means local official leadership—a leadership which will tap all resources, inter-relate and balance all programs, and utilize and guide all the influences in the community that may be directed toward the public good.

COUGH DUE TO HYPERSENSITIVENESS TO ORRIS

BY ABRAHAM COLMES, M.D.*

THIS case is reported because it emphasizes an etiologic factor in cough not commonly recognized, but which, when identified, can be easily eliminated, and the patient thereby relieved of a distressing symptom. At the same time the consequences which often follow in the wake of persistent cough, such as bronchial asthma and emphysema, may thus be avoided.

CASE REPORT

A woman of 35 consulted me in August, 1928, because of cough. Her fourth baby had been born in May, 1928. A day or two prior to the delivery she contracted influenza. For several days she ran a temperature ranging up to 103 F. At the time she left the hospital she had been free from fever for a week. Cough, however, which started early in the disease, has persisted since. There seemed to be no let-up either day or night, although on some days she felt better than on others. She raised a very little white stringy sputum without relief. She never wheezed, although on cloudy days her chest felt tight. There was never any hemoptysis, nor any night sweats or chills. Her temperature remained normal. There was no rhinorrhea or sneezing and no sore throat. There were no gastric symptoms and the bowels were functioning well. She had lost some weight. There were no urinary disturbances, except for a mild glycosuria which she had had since the sixth month of pregnancy and which was taken care of by proper dieting. She suffered no head-ache; she was tired mainly because her sleep was disturbed by the cough. She was nursing her baby for two months after delivery, but experienced no relief from cough when lactation was discontinued. None of the medicines prescribed for her by the physician gave any relief.

The following points of importance were noted in her past and family history. For several years, up until the birth of her daughter, 9 years ago, she had had hay-fever during some part of the summer. Both parents are alive. Her father has had a mild diabetes for years. Her mother has had hay-fever for several years; of late she has been suffering from angina pectoris. One sister has otosclerosis.

Physical examination in August, 1928, presented the following points of interest: a red-looking throat, large injected tonsils, hyperresonant lungs, low-pitched respiratory sounds, rather prolonged respiratory excursions and an occasional squeak over the anterior portions of both lungs only after intense coughing. The heart presented no evidence of disease; the eyes, neck, abdomen, extremities, reflexes were normal. Pulse 80; temperature 98; B.P. 110/70; urinalysis negative; blood sugar (fasting) 0.08 milligram per cc.; blood Hg. 80—smear not remarkable except for eosynophilia of 4%.

The history and physical examination of this patient seemed to point to a relationship between the illness in May and the cough. One of the possibilities was that the influenza might have been accompanied by an unrecognized central pneumonia, which, if unresolved could well be the cause of the cough. This, however, did not seem likely because of the total lack of physical signs of lung pathology (except for the above mentioned bronchial squeaks) and the absence of purulent sputum. X-ray examination of the lungs failed to reveal any pathology. The sinuses, which were clinically negative, were normal by x-ray. The tonsils, although apparently inflamed, were never sore and did not seem likely to be the cause of the cough. In view of all the negative findings and because of the patient's past and family history of allergy, it seemed advisable at least to eliminate hypersensitiveness as a possible cause of her cough. For this reason skin tests with common animal emanations such as cat hair, dog hair, chicken feathers, etc., were performed. A few of the common pollens were included, although the possibility of a seasonal disturbance was not likely. The patient was also tested with orris root. The tests were performed by the scratch method, using dry proteins and decinormal sodium hydroxide as the diluent (except in the case of the pollens which were in solution of 1-100). Within half an hour these tests were read. The only positive reaction noted was at the site of orris root, where the wheal, measuring 12 millimeters and accompanied by pseudopods and surrounded by an area of erythema measuring 35 mm., left no doubt as to its interpretation. Further questioning of the patient revealed the fact that she had been using powder for many years, was fond of it and just now was in contact with it more than ever since she used it extensively on the infant's skin. Since it is not unusual for us to observe in hypersensitive patients positive skin tests quite unrelated to the clinical disturbance, the patient was warned of the mere possibility of face powder being the cause of her trouble and was asked to avoid all contact with powder for a while. In addition she was given small doses of potassium iodide and codein to help her rest at night. A week later she reported marked improvement of her symptoms and said she could sleep through most of the night without cough. She also told us that the reaction at the site of the orris extended over the whole arm on the day following the test.

One month from the date of her first visit, after thoroughly ridding herself of all powder, she was

*For record and address of author see "This Week's Issue," page 399.

practically free from cough, except on several occasions when in contact with people who were heavily powdered. This observation prompted us to try desensitization of the patient with an extract of orris by subcutaneous route.

The first inoculation of 0.05 cc. of a 1-10,000 dilution of an extract of orris root produced a large immediate local reaction. Within 24 hours the patient called up complaining that the inoculated arm swelled from shoulder joint to the tips of the fingers and that the pain was quite severe. This reaction lasted for 4 days and gradually subsided. It is interesting to note that though the patient had been sugar-free for months, having habitually tested her urine with Benedict's solution each day or two, she noticed the reappearance of sugar during the height of the reaction, and its disappearance after the reaction had subsided. The mechanism of this phenomenon is not clear, although it would appear that the systemic shock which resulted from the injection of a small desensitization dose of orris was sufficient to disturb her metabolism to the extent of precipitating a recurrence of her glycosuria. This observation would suggest the possibility that hypersensitiveness may be one of the causes of failure to successfully treat certain diabetics. The second inoculation was a repetition of the first dose and resulted in a lesser reaction. Since then the patient has received 8 treatments and remains free from cough, except on rare occasions when she gets extremely tired.

COMMENT

Hypersensitiveness to foreign substances, when it finds expression in the bronchial tree, manifests itself ordinarily in the form of bronchospasm, or, as commonly designated, bronchial asthma. In those instances where the foreign substances enter through the respiratory tract, sneezing and rhinorrhea either precede or accompany the asthma. Cough appears usually in these cases toward the end of the attack, when the mucoid tenacious substance secreted into the bronchial tubes sets up a reflex. Indeed, cough is but a reflex in response to some mechanical or chemical irritation of the nerve endings lodged in the mucosa of the respiratory tract. Inflammatory conditions, foreign bodies, strong fumes, pressure from adjacent organs, all seem to act in like manner in the production of this reflex, even in normal individuals.

It is obvious, then, that cough *per se*, even when associated with asthma, depends upon factors other than those which provoke bronchospasm, (the former being a manifestation of reflex irritation, the latter that of hypersensitiveness). Indeed, in any given case, the extent of bronchospasm in no degree determines the severity of the cough. In most instances it is bronchospasm, with difficult breathing, which completely dominates the picture of an asthmatic attack, cough being either insignificant or entirely absent.

But the striking feature of this case lies in the fact that cough alone, without the presence of either nasal symptoms or bronchospasm, or any other factor that would be likely to cause irritation in a normal individual, was a true manifestation of hypersensitiveness, as unmistakably proven by the course of the patient's illness and subsequent recovery upon removal of the specific allergen.

In passing, one needs but mention the fact that orris root has been clinically recognized as a true allergen, even though its antigenic properties have not been proven in the laboratory. Cough as a manifestation of hypersensitiveness probably depends upon the same abnormal mechanism as vasomotor rhinitis and bronchospasm do, except that the seat of sensitization seems to be different. One cannot explain why an allergic reaction to the same substance but in different individuals should find its seat in different parts of the respiratory tract, such as either the nose or bronchial tree. In the case of cough the seat of sensitization would appear to be in the pharynx.

One cannot pass without noting the apparent relationship of infection to the establishment of a hypersensitive state in man. Rackemann[1] has observed that the time relationship between the beginning of use of face powder (orris base) and the first appearance of symptoms from contact with it varies in different individuals somewhere between 6 months and 6 years. Were contact with the allergen alone sufficient to cause sensitization in a potentially hypersensitive patient, we would expect a constant interval between the time of exposure and the appearance of symptoms of sensitization in the same species; but apparently some other factor, or factors, must enter into play in the completion of the allergic state. Fatigue, overwork, worry, exposure, or acute infectious diseases are so often mentioned by patients as being incidental to or preceding the onset of their symptoms that we may regard them as essential factors in the completion of the hypersensitive state. One can conceive of an individual's threshold of resistance as being lowered through the influence of any of the factors mentioned above, and of the first appearance of symptoms of sensitization as corresponding in time to the occurrence of the incidental debilitating factor, rather than to the exposure to a given allergen. It would seem, then, that in our patient the onset of an acute respiratory infection caused sensitization to a foreign substance which had been innocuous for her so long as she remained in good health.

In summary we might say that clinically, at least, we have been able to observe the natural evolution of the phenomenon of hypersensitiveness in a susceptible individual and the factors that seem to be essential in its causation: first, a family history of allergy; second, exposure to an allergen which was at first quite innocuous to the patient; third, the occurrence of an illness in the course of which the hypersensitive state established itself.

The chief reason, then, for reporting this case is that hypersensitiveness to orris powder produced not asthma, as it commonly occurs in allergic patients but cough. This, in turn, suggests that in the numerous instances where the

cause of cough remains unexplained and where lung pathology is excluded both by physical and x-ray examinations, and in the absence of any other reflex cause of cough, a state of hypersensitiveness to some foreign substance should be considered, particularly so when the patient gives a family history, or past history, or both, of allergy.

REFERENCE

1 Rackemann, F. M.: J. A. M. A., 84, Feb., 1925.

COMBINED CHANCRES OF PENIS AND LIP

Report of a Case

BY EDWARD WINSLOW KARCHER, M.D.*

B. L., a married white man, 35 years of age, entered the South Medical Clinic complaining of a sore on the lower lip, of one month's duration. He admitted one extra-marital exposure two months previous to the appearance of the lesion. At the time of exposure the patient had a fissure of the lip at the point at which the ulcer subsequently appeared. He stated that in the three weeks preceding his visit to the clinic, he had made one visit to each of three physicians, and that all three diagnosed the lesion as a "cold sore". He further stated that he drank five half-pints of alcohol during the afternoon and evening preceding his visit to the clinic.

Examination revealed a nickel-sized, indurated ulcer, covered with a thick dark brown crust. The ulcer was situated at the mid line of the lower lip, and involved both the skin and mucous membrane. A walnut-sized, firm, non-tender gland could be seen and felt in the left submaxillary region. Further examination revealed two dime-sized, indurated ulcerations on the penile shaft, near the distal end. In both groins, marble-sized, non-tender glands could be seen and felt. There were no signs of secondary syphilis. A dark-field examination of serum from each of the lesions showed Treponema pallidum.

The Wassermann test was strongly positive, and the Hinton test, moderately positive.

This case is reported because it presents several points of interest:

1. (Rarity)
   Among 26,126 cases of syphilis seen at the South Medical Clinic, this was the only one that had combined chancres of the genitals and some distant location. We do, however, frequently see multiple chancres of the genitals and contiguous surfaces.
2. (Diagnostic error)
   Note the patient's statement that he had been examined by three physicians, all of whom diagnosed the case as "cold sore". This diagnosis is almost invariably made on lip chancres, and at least one month elapses before the physician or patient suspects that the lesion may be something else.
   It is to be deplored that ulceration, induration and regional adenitis do not immediately suggest chancre to every physician.
   All patients presenting this type of lesion should have a dark-field examination at once. By this procedure a positive diagnosis can usually be made long before the blood becomes positive or secondaries make their appearance.
3. (Effect of alcohol on blood Wassermann)
   It is frequently stated that the ingestion of several ounces of alcoholic liquor will cause a positive blood Wassermann to become negative if the examination is made within twenty-four hours. If we assume that the patient's statement regarding the alcohol was true, this case proves at least that there are exceptions to the rule.

*For record and address of author see "This Week's Issue," page 399.

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE LAUNCHES MEMBERSHIP CAMPAIGN

Two Thousand Five Hundred Members by 1930 is the slogan of those who are in charge of the membership campaign now under way for the Massachusetts Society for Mental Hygiene. There are about 1,300 members to start with scattered over the State. To double the membership by 1930 is the goal.

The Executive Committee, long realizing the importance of a large and representative membership, recently decided that the time is ripe for launching an intensive state-wide membership campaign. The Committee looks forward to bringing within the fold a much larger membership of the same quality the Society now enjoys—men and women with deep civic interest looking forward to improving the public health and social welfare of the State.

To accomplish this without seriously interfering with the present heavy program of the Society, the Executive Committee has arranged for a special organization of volunteers to carry on this campaign with a Director of Membership in charge. We are pleased to announce the appointment of Dr. Merrill E. Champion as Director. Dr. Champion, until recently Director of Hygiene of the Massachusetts Department of Public Health, is well known throughout the State, as well as nationally, as an authority in his field. Dr. Champion's realization of the importance of mental hygiene to public health has led him to take on this obligation although it means much sacrifice of time and energy on his part. We feel particularly fortunate in having him take charge.

With the help of local committees Dr. Champion plans to canvass all the cities and the larger towns for membership. He will have the aid of Assistant Directors, each responsible for a section of the State. Mrs. Leslie B. Cutler, formerly Chairman of the Board of Health of Needham, is in charge of the Eastern section (Essex, Middlesex, Suffolk, Norfolk, Bristol, and Plymouth Counties). Dr. Lawrence A. Averill, Professor of Psychology at the Worcester State Normal School, is in charge of the Central section (Worcester County); and Miss Christine L. Lewis, of the Springfield High School of Commerce, is in charge of the Western section (Hampden, Hampshire, Franklin, and Berkshire Counties). In the two larger sections the Assistant Directors will have the aid of County Chairmen who are yet to be appointed.

Every member can be of help in this ambitious but important program and we hope that all who can afford to give a little of their time will write to Dr. Champion (5 Joy Street, Boston) and volunteer their services. For those unable to accept a place on a local committeee, there is the opportunity to solicit a membership or two.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15081

FOUR MONTHS' DIARRHEA

MEDICAL DEPARTMENT

First admission. A married American woman forty-one years old entered June 8 complaining of diarrhea and abdominal cramps.

Four months before admission she began to have gradual onset of diarrhea with loose movements and a little blood. This increased to three or four movements a day, then abated, and for two weeks she was symptom-free. Then the diarrhea recurred with more rapid onset. By the third day she was having five or six movements a day. Since that time it had been constant. The stools were watery, "looked like a clay mass", and contained mucus, blood and pus. She had a movement about quarter to six in the morning, one or two more before nine o'clock, then none until after luncheon, when the diarrhea recurred until midafternoon. She usually had one movement after supper. The same periodicity persisted for a week when she stayed in bed and ate nothing but gruel. Three weeks before admission she had severe cramps, usually in the lower abdomen, sometimes radiating up to the epigastrium, so severe that she stayed in bed for a week. They persisted in spite of the rest and gruel régime. They usually came on just after breakfast and luncheon and lasted half an hour to two hours. After supper they lasted but a few minutes. They might disappear after defecation or spontaneously. Hot water bottles always gave relief. The cramps had no relation to menstruation or to epigastric distention, which she had had for several years. This had been worse since the onset of the diarrhea. She had had only slight nausea on two or three occasions.

At the Consultation Clinic June 1, a week before admission, proctoscopy showed numerous areas of ulceration over the mucosa of the rectum and the lower sigmoid. The mucosa appeared edematous and granular. X-ray examination with a barium enema showed that the entire colon filled out normally. All portions were freely movable. The descending and transverse colon were somewhat low in position. A Hinton test was negative.

Her mother died of diabetes. The patient had had no association with tuberculosis, though two cases appear in the family history.

She had always been ailing. She had tonsillitis every winter until her tonsils were removed at seventeen. She had one miscarriage at eight (?) months. She had sick headaches two or three times a month, frontal or occipital, with nausea but no vomiting and preceded by dizziness and blurred vision. After she had her hair bobbed five years before admission she had no more sick headaches. She had worn glasses three years for headache. She had noticed blurring during the past week. For a year she had had distention, chiefly in the epigastric region, once or twice a week lasting all day. She noticed prominence of the epigastric region during the attacks and had bought a supporter. She had occasional attacks of vertigo on stooping, worse in the past two weeks. Ten months before admission she weighed 114 pounds, her best weight. During the past two months she had lost nine pounds.

Clinical examination showed a poorly nourished woman, slightly pale. The examination was otherwise negative except for the rectal examination, which showed slight tenderness; the mucous membrane in prominent folds, with what appeared to be prominent rugae.

Urine not remarkable. Renal function 80 per cent. Blood normal. Hinton test negative. Stools, mucus at 4 of 16 examinations, blood at 6, questionable at a seventh, pus at 3, questionable at two more, guaiac very strongly positive at eight. No tubercle bacilli found at all of four special examinations.

X-ray examination showed the lung fields rather large and bright. The hilus shadows were markedly increased. A few dense glands were present. There was slight lateral curvature of the spine. The apices and periphery of the lungs were clear. The heart shadow was not remarkable. Colon examination again showed ptosis of the entire colon. There was lack of haustral markings in the descending colon. A second chest examination nearly four weeks after the first showed no change in appearance.

Temperature not remarkable until June 29, then 99.8° to 104.1° until July 9; normal for two days, then another period of elevation up to 104° ending July 18; afterwards normal. Pulse 70 to 109. Respirations normal.

For four days ending June 13 the patient had lower abdominal cramps which stopped with the cessation of menstruation. During the next four days the condition of the stools improved. June 19 proctoscopic examination showed small punctate areas of inflammatory reaction with an easily bleeding point in the center. The condition was marked in the rectum and diminished rapidly as the sigmoid was reached. A low roughage diet including a cup of tomato juice a day was recommended, with starch enemas with laudanum for discomfort. The patient felt very much better for four days. June 23 lower abdominal cramps and severe watery diarrhea recurred. Bargen's diplococcus was found as

the predominating organism in two stool cultures. The patient had unproductive cough, chilly feelings and a reddened throat. The morning of July 3 she was very drowsy; when roused mildly psychotic. She had possible slight internal squint on the left. That night the left upper lid was ptosed and the temperature was 103°. On the knees, ankles and the left foot and elbow were skin lesions said by a dermatologist to be due to absorption, possibly intestinal, of some toxic product. The patient improved in every way except for intolerable itching of the rash, improving when meat and tomato juice were omitted. She continued to be drowsy, to have diarrhea and to eat poorly. By July 19 the rash was rapidly vanishing. August 2 the patient was discharged with orders for a high caloric, low residue diet, bismuth subcarbonate and rest.

History of interval. In two weeks the patient had completely regained her strength. She gained weight steadily to 103 pounds in September. She had only one stool a day and that normal. During the last week in September all her symptoms suddenly recurred. She had a liquid stool every fifteen to thirty minutes and noticed blood for the first two or three days. She went to bed at once and remained there. She had sharp lower abdominal pain, practically constant, occasionally less severe. With the recurrence of the other symptoms she had nausea with retching. She had an almost constant sense of a substernal lump. She had much gas and discomfort after meals. During the two weeks before her readmission she grew rapidly worse. At admission she was so ill and dull that the interval history was not believed to be accurate.

Second admission, October 25, three months after her discharge.

On clinical examination she was markedly dehydrated and emaciated and looked very ill. Mucous membranes dry and parched. Abdomen scaphoid, with generalized tenderness and voluntary spasm. Heart sounds of fair quality. Pulses of poor volume and tension. Blood pressure 110/70. Pupils small and reacted sluggishly.

Urine normal. Blood: hemoglobin 75 to 60 per cent, reds 5,050,000 to 4,160,000, smear normal, 30,800 to 18,600 leukocytes, 85 per cent polymorphonuclears. Stool: guaiac positive at all of five examinations, very strongly at the first two, mucus, blood and pus at the first. Stool culture showed colon bacillus.

Before operation temperature 98.1° to 100.4°, pulse 100 to 126, respirations normal.

Under medical treatment—repeated hypodermoclyses, starch enemas with opium, small frequent feedings and morphia—the patient made little improvement. Intradermal tests for Bargen's organism were negative. October 28 transfusion was done with no reaction but only slight improvement.

November 3 operation was done. The temperature was 102° after it, reaching normal two days later but rising again to 103.3° November 7. The pulse was 130 to 150. She was fairly comfortable, but drowsy and unresponsive. Profuse diarrhea continued as usual. She was incontinent and part of the time delirious. She went downhill rapidly, became comatose and November 13 died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

If this record of the feces is taken as true she had ulcerative colitis. This is all the evidence we need.

Anyone who is having trouble with the bowel—any one of a good many different troubles with the bowel—is likely to have increased trouble immediately after the meal, because the intake of food produces hyperperistalsis and can easily give enough hyperperistalsis to produce cramps.

Of course the symptoms have not been going on very long, and the cases I have known where X-rays have shown real changes in ulcerative colitis have lasted much more than four months.

This is the right way to write a family history in regard to tuberculosis. It is quite refreshing to see that we are getting it right now.

This is the simplest treatment for sick headaches I ever heard of.

NOTES ON THE PHYSICAL EXAMINATION

I have never heard of such a renal function as 80 in two hours. I have never heard of that amount coming through in that time.

They are looking hard for evidence of tuberculosis in the lungs as a cause for possible tuberculosis in the bowel. On the whole the evidence seems to me against tuberculosis of the bowel.

The gas and discomfort after meals I guess was the cause of the "substernal lump".

We have to suppose that the diagnosis was ulcerative colitis, but I am not sure what operation they are going to do. If it is in a very limited portion of the colon they can remove it. Another thing sometimes done is to make an opening so that the surgeon can wash out from the top down; ordinarily this is done at the appendix. I should say also that operation might be done for a suspected perforation. There does not seem much evidence to me, but she has temperature and leukocytosis not very clearly explained.

PRE-OPERATIVE DIAGNOSIS

Ulcerative colitis.

OPERATION, SECOND ADMISSION

Under local novocain a gridiron incision was made. The omentum was found to be everywhere adherent. There was much thickening in the cecum and below. An attempt was made to get into the ileum, but it was found to be impossible on account of adhesions. Because of the condition of the patient, the large mass of inflammatory tissue in the lower abdomen, and the fact that no available intestine for an ileostomy was found, no further surgical procedure was done. The wound was closed.

FURTHER DISCUSSION

They did not say anything of any suspicion of complications, or of their plans.

Very sensibly, I think, they did not try to do more operating.

DIFFERENTIAL DIAGNOSIS

I do not see what doubt we can have as to the main diagnosis. The only question is of complications. Ulcerative colitis is the only diagnosis of which we have any evidence. The operation seems to make it clear that there was no acute perforation. It rather looks as if there had been a number of chronic perforations in the preceding months with adhesions formed around them.

Of what did she die? I am not sure. Of course one can die of ulcerative colitis and nothing else, and she was so dehydrated and exhausted that perhaps that is all that we need to say. These patients often get a bronchopneumonia; but we have no evidence of it here. Beyond that I have no guess.

A STUDENT: What is Bargen's organism?

DR. TRACY B. MALLORY: Bargen at the Mayo Clinic has recovered from a very large portion of his cases of colitis a Gram-positive diplococcus which he feels is characteristic of this disease. The local experience in Boston has been that one finds sometimes an organism which apparently is identical with his. In the majority of cases one does not. He has treated a number of cases with vaccine made from that organism along with all the other usual methods of treatment, and has reported a very high percentage of cures. Similar efforts here have been unsuccessful.

DR. CABOT: I have never seen a case cured. I have seen long remissions, sometimes for as much as a year. I think it is rather characteristic to have remissions. But I have never seen a case get well. I think you may remember a case at the Brigham Hospital not long ago when we had this same disease and the same organism in the tissues. It was not then cultivated.

A STUDENT: What is a sick headache?

DR. CABOT: A sick headache is what we ordinarily call migraine, a headache that comes without any reason in people whose parents and often grandparents have had similar things. It often hits one side of the head, hence the term *hemi-crane* or migraine. It is about the most unsatisfactory thing to treat that a doctor ever sees. Practically nothing has been done for it in my experience, and it is perfectly compatible with living to a good old age. Women are very apt to have it at the menstrual period; but it has nothing to do with menstruation. The only good thing about it is that it sometimes stops with the menopause. Doctors dread to have a patient come into the office with this sort of thing, because they know they usually can't do anything about it.

INTERPRETATION OF X-RAY, FIRST ADMISSION

No evidence of tuberculosis.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Chronic ulcerative colitis.

DR. CABOT'S DIAGNOSIS

Chronic ulcerative colitis.
Possible perforation.

ANATOMIC DIAGNOSES

Chronic ulcerative colitis.
Perforated ulcer of the colon.
General peritonitis.
Emaciation.

DR. MALLORY: This woman did have a severe, extensive, very acute ulcerative colitis. Dr. Cabot was right in the complication which he suggested, which however occurred subsequent to the operation and not before it. She did finally have a perforation of the colon and general peritonitis.

One other point in the pathological findings was very unusual, so far as I know. That was a group of small ulcers in the esophagus which were apparently identical in gross and histologically with those in the colon. The intervening portions of the intestinal tract were entirely negative.

DR. CABOT: Is the bacteriology interesting?

DR. MALLORY: In the bacteriologic examination made at the autopsy Bargen's "bacillus" was not found, and no other possibly suspicious organisms, such as those of the dysentery and paratyphoid groups, could be recovered.

CASE 15082

UNUSUAL COMPLICATIONS WITH AN ENLARGED PROSTATE

UROLOGICAL DEPARTMENT

A man aged sixty-five, a laborer, born in Ireland, was first seen in the Out-Patient Department September 15. Seven weeks previous to this he had noticed blood in the urine together with frequency of urination and a mild inter-

mittent drawing pain in the right inguinal region. Since then he had had no active bleeding, but thought the urine had at times been smoky. The frequency had continued up to the present, every hour by day and two to four times at night, as had also the pain in the right inguinal region. Two years ago after drinking considerable beer he had an acute retention which was relieved by catheterization. He had a similar experience one year ago. The catheter passed without difficulty on both occasions. He had never had any urinary incontinence or dribbling. No venereal history was obtained. He worked up to seven weeks ago. His best weight was 150 pounds, ten years ago, his average weight for the last year or two 132 pounds. He now weighed 122 pounds.

His family history is not important.

Physical examination. A man in no apparent pain, who looked as though he might have lost some weight recently. Several cavities in teeth and some pyorrhea. Heart not enlarged, rate regular, rhythm good, no murmurs or thrills. The sounds however were of poor quality. Blood pressure 168/108. Moderate peripheral arteriosclerosis. Abdomen: slight tenderness over the right inguinal region; no spasm and no masses noted. Prostate by rectum large, regular in outline, not fixed, no areas of hardness. External genitalia negative. Voided urine, which consisted of only a very small amount, was hazy and showed a slight trace of albumin and many red blood cells. A soft rubber catheter passed without obstruction and a few drops of urine were obtained.

September 19 cystoscopy was done. Considerable depression was necessary to pass the instrument into the bladder. The bladder urine was red. The bladder was very irritable—would tolerate only a very small amount of fluid. Examination was unsatisfactory, but distinct projection of the prostate into the bladder was noted, also a few small irregular masses which were free and were thought to be stones.

The patient was given a letter to the House, where he was admitted October 24, with a diagnosis of obstructing prostate and bladder stones.

October 25; phenolphthalein test: appearance time 12 minutes, first hour 55 per cent, second hour seven per cent. Non-protein nitrogen 30. Hinton test negative.

October 26 a cystogram was done. Plates taken before injection showed marked calcification of the internal iliac arteries and extensive proliferative changes about the margins of the bodies of the vertebrae. There were also several small shadows low in the pelvis. After injection the bladder outline was fairly well shown. It was smaller than usual. There was a constriction of the neck with a rather irregular border. There was no evidence of diverticulum.

October 29 cystoscopy was done. At this time the previously noted stones were not seen. The examination again was unsatisfactory.

Discussion

BY OSCAR F. COX, M.D.

As retention following alcoholic excess is usually caused by congestion superimposed upon some preëxisting pathology such as prostatic disease or stricture, these conditions should be considered. Blood in the urine, always a tremendously important finding, may be caused by many conditions, congested prostate being one of the common ones. The pain as described in the history is of no importance in helping us to arrive at a diagnosis. Frequency of urination is the usual complaint with an obstructing prostate. However, the type of frequency more commonly seen is nocturnal in character with little or no disturbance during the day. A large prostate was noted by rectal palpation and cystoscopic examination. However, it is well to bear in mind that not all large prostates cause obstruction and that many small ones do. A small bladder and the absence of residual urine are contrary to what might be expected with an obstructing prostate.

He was admitted to the wards with a diagnosis of obstructing prostate. Hypertrophied prostate would have been more correct. With the information at hand we are not justified in considering prostatectomy.

Further History

October 29 X-ray examination showed three or four dense linear areas of calcification in the right kidney area. The right kidney outline was not visible. The right flank was dull, suggesting a mass. The roentgenologist thought tumor in the right kidney should be considered. Examination of the chest failed to show any evidence of metastases.

October 30 palpation in the right upper quadrant showed a large non-tender mass descending on respiration.

October 31 cystoscopy was done. Prostatic enlargement was again noted. There was considerable bladder spasm due to irritable mucosa. The congested prostate bled easily. Both ureteral orifices were seen. Catheters were placed in the orifices, but because of spasm the bladder would not hold sufficient water to permit of passing the catheters up the ureters. Cystoscopy under spinal anesthesia was advised. On careful abdominal palpation an irregular nodular mass was felt in the right upper quadrant.

November 2 another cystoscopy was done under spinal anesthesia. Catheters were passed to both kidneys. There was a good flow of urine from the left, none from the right. The urine from the left kidney showed a few red blood cells, five to ten leukocytes, a few epithelial cells.

The function of the left kidney was 17 per cent, the appearance time 6½ minutes, the right function zero. Culture of urine from the left kidney showed colon bacillus and staphylococcus aureus.

A right pyelogram showed the opaque catheters extending to within the region of the kidney pelvis on each side. The lower pole of the left kidney was visible and in the usual position. The areas of calcification were well shown. After injection the calices of the right kidney were not filled. The dullness on the right side previously described was still present. The pelvis of the kidney appeared deformed. The ureter was not dilated. The findings suggested tumor of the kidney.

November 3 a catheter specimen of bladder urine showed no acid-fast bacilli.

November 5 operation was done, right nephrectomy.

Up to and including October 28 the temperature was normal. Following the cystoscopy done October 29 it went to 101.5° and remained between normal and 101° until the operation. After this it dropped to 97° and did not again go above 98.6°.

November 8 the patient died.

PATHOLOGICAL REPORT

Right kidney. The specimen consists of a kidney diffusely enlarged, with a smooth nodular surface. It measures 18 by 10 by 9 centimeters and weighs 865 grams. The cut surface shows a large number of scattered rounded yellowish nodules. The tumor extends into the renal pelvis. Microscopic examination shows that these nodules consist of masses of large transparent vacuolated cells with small densely staining nuclei. No tubercle formation is seen. The renal tissue shows compression and atrophy and a diffuse lymphatic infiltration.

Hypernephroma.

Further Discussion

The fact that the mass was not noted until the patient had been in the wards for six days, while not excusable, is explained by the fact that it was necessary to have the patient lie on his left side with the thigh flexed on the abdomen in order to palpate it. In this position and on deep inspiration it was not easily felt. As the routine method failed to disclose what later proved to be the major trouble, it seems to me the importance of very careful palpation in all cases is well illustrated. Probably if the patient had not had a large prostate more careful attention would have been given to the kidney regions. Had the last cystoscopy and pyelogram been unsuccessful the finding of the mass together with the hematuria would have warranted exploration.

The foreign bodies which were seen in the first cystoscopic examination and which were perhaps the shadows noted in the X-ray report of October 26 were not noted again. They could have been small stones and have passed out of the bladder subsequent to October 26.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Hypernephroma, right.
Obstructing prostate.
Bladder calculi.

ANATOMIC DIAGNOSES

1. *Primary disease.*
   Hypernephroma with metastases to lungs.
2. *Secondary or terminal lesions.*
   Subacute appendicitis and typhlitis.
   Hypertrophy of prostate.
   Cystitis cystica.
   Arteriosclerosis.
3. *Historical landmarks.*
   Nephrectomy, right (for hypernephorma).

Dr. Tracy B. Mallory: The autopsy showed the wound of the nephrectomy operation to be free from infection or serious postoperative hemorrhage. No enlarged lymph nodes were demonstrated in the retroperitoneal tissues. A metastatic focus of hypernephroma was however present near the apex of the left lung, approximately 1.5 centimeters in diameter. It would probably have been readily visible in an X-ray plate of the chest. The immediate cause of death was a surprising one. The appendix was bound down to the brim of the pelvis, and the omentum and a coil of small intestine were adherent to it. As these adhesions were freed a small amount of pus was found just beside the appendix, and a minute perforating ulcer just at the appendiceal-cecal junction was disclosed. The cecal wall for some distance around this area was thickened, whitish, and firmer than normal. The adhesions had successfully walled off the process and prevented the development of a general peritonitis. The process in the cecum and appendix was evidently an old one with an acute perforation superimposed. One wonders if the pain in the right inguinal region mentioned in the first lines of the history may not have been indicatory of this lesion.

Dr. Cox: Pain and tenderness in the right lower abdomen, even with a normal temperature, should always make one think of the appendix. This case, however, presented so much urinary pathology that the true importance of these findings was entirely overlooked.

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NEW JERSEY DENOUNCES PASTEURIZED CERTIFIED MILK

A CURIOUS type of loose thinking evidences itself in a resolution recently passed by the Essex County (New Jersey) Medical Society, and reported on at length in the *Newark Evening News* for January 16. "War against any lowering of the standards under which certified milk is produced and sold," according to this report, "was declared last night by the Essex County Medical Society". This bloody strife, we learn as we read further, has been brought on by a movement which has gained headway in Boston to allow the term "certified" to be used in connection with pasteurized milk. The pasteurization of milk, apparently—at least in the minds of the more emotional members of the Essex County Society—constitutes a lowering of the standards of certified milk. It is an interesting thought. We in benighted Boston had come to believe that pasteurization was a raising of the standards of milk, particularly if the milk pasteurized had already met the rigid requirement of certification, and we believe that nowhere have these requirements been more exactingly insisted upon than by the Boston Medical Milk Commission.

The *Newark Evening News*, like a good patriotic paper, even if it misses the whole point of the milk argument, backs up its local commission with a good strong editorial; an editorial that fairly bristles with outraged decency. "Strong words", the editorial begins, "but not one whit too strong, are used by the Essex County Medical Milk Commission in denouncing a reported widespread movement on the part of dairy interests to employ the word 'certified' in labeling a pasteurized milk. Since pasteurization and certification of milk, when each is properly understood, can no more be made to mix than oil and water, a 'pasteurized certified milk' is designated in the commission's resolution as 'a misbranding and falsification, a misuse of the word certified and a fraud upon the public."

Strong words these, and well calculated to make the members of the Boston Medical Milk Commission cower, for each of them has received a marked copy, from source unknown, of the *Newark Evening News* for January 16. Men who would misbrand, falsify and commit frauds upon the public should be made to cower, if indeed they are capable of that saving act of grace.

The Essex County Medical Milk Commission and the *Newark Evening News* are right. The trouble is they are only partly right. They are right in declaring that Dr. Henry L. Coit, in introducing milk certification set new standards of excellence in milk production and gave to the world a product providing an indispensable safeguard of babyhood. They are wrong, absolutely wrong in asserting that the pasteurization of this milk tends to lower its standard. By allowing the pasteurization of certified milk and putting its stamp of approval on it, the Boston Milk Commission is making a good milk as nearly perfect as it is possible to make it. It is definitely raising the standards of milk production. It is performing a real public health service by putting itself squarely behind the principle of milk pasteurization and only by creating a general demand for the effective pasteurization of milk can milk be finally ruled out as a source of disease.

All honor to the promoters of certified milk! They have done more to safeguard infancy than anyone else—except Pasteur. They stopped one step short of the ideal however; they omitted pasteurization.

Certified milk is good milk; it is as safe as raw milk can be made, but no raw milk is entirely safe. Pasteurization will make milk as safe as any factor can make it except boiling. The Boston Medical Milk Commission, if it is advocating the pasteurization of certified milk, is bringing itself up to date. The country will be better off when the writing on the wall is generally read and all milk is pasteurized.

AN UNWARRANTED ASSUMPTION

THE Congress of the United States has before it for consideration three bills authorizing the establishment of a National Institute of Research, among the purposes of which is to provide for investigations in the medical sciences on subjects particularly pertaining to the public health. The Surgeon General of the United States Public Health Service would be its administrative head, and the members of the service, especially those assigned to the Hygienic Laboratory, would be the agents for carrying on the various researches. The United States Public Health Service has an eminent and enviable national and international reputation for scientific ability and integrity, and its Hygienic Laboratory ranks high among similar institutions throughout the world for its contributions to medical knowledge as well as for the scrupulous and meticulous care it exercises over the manufacture and distribution of biologic products. While we are not familiar with all the provisions of these bills, we understand that they will authorize the Government to accept financial contributions for the support and furtherance of these investigation activities. We know of no applications of private or public funds which would bring any greater ultimate benefit to the people of the country than the one proposed and we know of no more conscientious administrators of such monies than men of the type that constitute our Public Health Service.

It is, therefore, with amazement and, we feel, quite proper resentment that we read in the February second issue of the *Journal of the American Medical Association* a communication implying that the acceptance of funds from commercial firms or private foundations would corrupt this Service. The correspondent goes so far as to say, "Passage of any of the proposed bills authorizing acceptance of private donations for the United States Public Health Service would amount to turning the United States Public Health Service over to the commercial manufacturers and private foundations."

It seems to us that this statement is entirely unwarranted and is a gratuitous insult to a department which has a history of long and beneficent service and distinguished traditions, and we regret that our usually esteemed contemporary opened its columns to such a letter.

To be sure, the writer of this letter pays his respects to the present Surgeon General and the personnel of the Hygienic Laboratory, but his fears for the character of the future members of this Service lead him to make a statement which would be ridiculous if it were not sinister. This contributor is surely aware that for a long time just such funds have been accepted by many of our leading colleges and universities with no consequent lowering of their high ethical standards, and that similar contributions to various scientific or welfare societies and other altruistic enterprises have, in the main, been conscientiously administered. We, therefore, do not share the correspondent's fear that with the acceptance of private funds venality will take the place of the independent and unbiased attitude that has so long characterized the decisions of our federal health authorities, and we heartily and fully support any proper measures which will assist and extend the valuable work of our United States Public Health Service.

AN IMPORTANT PUBLIC HEALTH PROBLEM

RECENTLY there have come to our attention two cases which are enlightening but not inspiring.

CASE I. A patient reported to a physician with a penile sore as his complaint. The physician was graduated from a reputable European medical school in 1919 and was registered to practice medicine in Massachusetts in 1924. He has an office in Boston. The physician recognized the lesion as probably syphilitic and took a specimen of blood for Wassermann test. The laboratory reported it to be moderately positive. The physician told the patient that his blood was somewhat positive and then treated the lesion locally with some unidentified ointment. A month later the patient appeared at one of the venereal disease clinics with an unhealed, heavily discharging penile sore and a secondary syphilitic eruption.

CASE II. A patient reported to a physician with a penile sore as his complaint. The physician was graduated from a Class "A" Medical School in 1916 and is licensed to practice medicine in Massachusetts. He has an office in the Metropolitan area of Boston. The physician told the patient that he could not state whether or not the lesion was syphilitic at that time, and requested that the patient return in one month. A month later the patient returned with a characteristic secondary syphilitic eruption. The physician diagnosed syphilis and sent the patient to a venereal disease clinic for treatment.

These two cases are typical of many which appear at clinics or at the offices of syphilologists after weeks and months of gross mismanagement at the hands of some physicians.

We are compelled to withhold judgment of these physicians because we are acutely aware of the disgraceful lack of instruction in the treatment of the venereal diseases in the medical schools. On the other hand, physicians reasonably may be expected to keep abreast of the development in treatment of the diseases which they attempt to diagnose and treat. No good physician relies forever only on what he learned in medical school. Since the discovery of the spirochete, the development of the Wassermann test and the discovery of the arsphenamines, the treatment of syphilis has become entirely different from that which depended upon mercury and potassium iodide.

A chancre may be present for as long as three or four weeks before the blood Wassermann will be positive. Therefore, the darkfield examination of material from the sore is essential to early diagnosis and early treatment. The most

expert syphilologist refuses to diagnose or rule out chancre on clinical inspection alone. Physicians who do not have darkfield equipment will certainly find it available in most of the clinics and in the offices of syphilologists.

Neglect in making the earliest possible diagnosis and in instituting immediate treatment results in seriously decreasing the patient's chances of cure; in subjecting him to the dangerous consequences of tertiary syphilis; and leaving him in an increasingly more infectious condition to the danger of those with whom he comes in contact. Too many husbands and wives are being infected innocently by mates who have infectious syphilis. Too many children are being born with the stigmata of congenital and heredo-syphilis.

The arsphenamines are essential in the treatment of syphilis. Infectious lesions are healed quickly with this drug. Local treatment of lesions or the use of mercury or iodides alone in primary or secondary syphilis is the grossest form of inadequate treatment. The State Department of Public Health recently has offered arsphenamine, sulpharsphenamine and neoarsphenamine free of charge to registered physicians.

Syphilis and gonorrhea together constitute the greatest public health problem of the day. In 1926, there were reported in forty-one of the States 200,524 cases of syphilis alone, as compared to 184,521 cases of scarlet fever, 87,113 cases of diphtheria, 37,136 cases of typhoid fever and 29,718 cases of smallpox. Twenty-three states reported 103,355 cases of tuberculosis (all forms) and 127,128 cases of syphilis. No one knows better than physicians how incompletely the venereal diseases are reported, so that the figures quoted represent only a fraction of the real problem.

It is estimated on the basis of a large series of studies made in several cities in the United States, including Massachusetts, that more than 50 per cent. of all physicians treat venereal disease at some time or other. How many of them, untrained in medical colleges in the treatment of syphilis and gonorrhea, and uninterested in keeping up-to-date in their treatment, are making the same unfortunate mistakes as were made by the physicians in the two cases here reported?

DISTEMPER IN DOGS

IMPORTANT advances, according to the *London Times*, have been made by the Distemper Research Committee as a result of its labors during the last five years on the causation and prevention of this scourge of dog life. In fact, if the report is to be credited, lines of research have been opened up which will have a wide value in the study and control of virus diseases in general, not only in other animals but in men as well.

The most important fact given out in the present announcement is that a point has been reached where it is possible to render dogs resistant to infection by distemper; a fact that has apparently been proved beyond dispute once and for all. The investigators, accepting Carvie's conclusion that the agent causing the disease is a filterable virus, have succeeded in immunizing animals against infection by a double inoculation, first with a vaccine which is the sterilized virus of distemper, and then with an attenuated strain of living virus. By this process, according to the report, 1,330 dogs, under the care of forty-four veterinary surgeons, have been successfully immunized against distemper, and 325 couples of fox hounds from fifteen different packs have been treated in the same way with the same satisfactory results.

England is fortunate that in that country distemper is the most serious disease of dogs that has ordinarily to be dealt with. If in this country the layman took rabies as seriously as his English cousin does distemper, we might have hope eventually of stamping out the disease.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

HOSKINS, R. G. A.B., A.M., Ph.D., M.D. Johns Hopkins, 1920. Professor of Physiology, Northwestern University Medical School and Ohio State University. Research Associate in Physiology, Harvard Medical School. Director of Research, Memorial Foundation for Neuro-Endocrine Research, Boston. His subject is: "Endocrine Factors in Dementia Praecox." Page 361. Address: Harvard Medical School, Boston.

HALL, FRANCIS COOLEY. Litt.B., M.D. Harvard, 1917. Associate in Medicine, Peter Bent Brigham Hospital. His subject is: "The Treatment of Arthritis." Page 369. Address: 372 Marlborough Street, Boston.

BARTLETT, WALTER M. B.S., M.D. University of Michigan Medical School, 1925. Assistant Resident Physician at the Boston City Hospital under F. W. Peabody, M.D., 1925-26. Interne in Children's Medical Department of the Massachusetts General Hospital under F. B. Talbot, M.D., 1926-27. Resident Physician at the Physiatric Institute, Morristown, N. J., under Frederick M. Allen, M.D., 1927-28. Practicing Physician at present in Bernardsville and East Orange, N. J. Address: 650 Park Avenue, East Orange, N. J. Associated with him is:

SUNESON, E. Their subject is "The Treatment of Arthritis, Rheumatism and Neuritis with Chemotherapy and Physiotherapy." Page 375.

MILLER, LESTER C. A.M., M.D. Harvard,

1895. Visiting Physician and Chief of Medical Service Memorial Hospital, Worcester. His subject is: "A Survey of the Hospitals of the Worcester District." Page 377. Address: 14 Oxford Street, Worcester, Mass.

FRIEDMAN, ELI. M.D. Tufts, 1913. Visiting Pediatrician to the Boston City Hospital and Beth Israel Hospital. Physician to the Prendergast Camp. Instructor in Pediatrics at Tufts Medical School. His subject is: "Some Observations on the Diagnosis of Mild Cases of Poliomyelitis." Page 384. Address: 311 Commonwealth Avenue, Boston.

ARMSTRONG, DONALD B. Ph.B., M.A., M.S., D.Sc., M.D. Columbia College of Physicians and Surgeons, 1912. Director, Department of Social Welfare of the New York A. I. C. P. Executive Officer, National Health Council. Secretary, Technical Board, Milbank Memorial Fund. Fourth Vice-President, Metropolitan Life Insurance Company. Formerly Executive Officer, Framingham Community Health and Tuberculosis Demonstration. His subject is: "The Field and Functions of the Private Health Organization." Page 386. Address: 1 Madison Avenue, New York City.

COLMES, ABRAHAM. M.D. Boston University School of Medicine, 1915. Assistant Visiting Physician, Beth Israel Hospital. Assistant in Medicine, Massachusetts General Hospital. Teaching Assistant in Theory and Practice of Medicine, Tufts College Medical School. His subject is: "Cough Due to Hypersensitiveness to Orris." Page 389. Address: 471 Commonwealth Avenue, Boston.

KARCHER, EDWARD WINSLOW. M.D. Middlesex College of Medicine and Surgery, Cambridge, 1916. Physician to Syphilis Department, Out-Patient Department, Massachusetts General Hospital. Consulting Syphilologist, Eye and Ear Infirmary. Instructor in Syphilology, Harvard Medical School. Instructor in Syphilology, Harvard Dental School. His subject is: "Combined Chancres of Penis and Lip. Report of a Case." Page 391. Address: 353 Commonwealth Avenue, Boston, Mass.

THE BOSTON MEDICAL LIBRARY

"HEREDITY"

THE address on Heredity by George H. Parker, Professor of Zoölogy, Harvard University, presented at the joint meeting in the Boston Medical Library on Wednesday, January 28, was of unusual interest. The technical language of genetics suggests to the medical, only somewhat less than to the lay mind, a special jargon. Of this there was in Professor Parker's presentations no hint. His mastery of available information and clarity of exposition with a sense of proportion which was manifest also in the sense of humor, made the hour's talk seem all too short. In the discussion there were brought out numerous additional points of medical interest.

The language of genetics is no more difficult than that which the physician uses constantly, but the medical profession has been and still is slow to seek acquaintance with the problems and results of recent scientific studies along this line. We are inclined to take little stock in the old family doctor who claimed to know the constitutions of his patients. But constitution in one form or another is creeping into medicine again. The old question of the debating society as to whether we owe more to heredity or to environment, is now receiving the answer "probably heredity". But of course this does not apply to disease, says the physician, with his eye on micro-organisms.

A fundamental difficulty in studying an individual from the point of view of heredity is to determine just what characteristics are due to heredity and what to environment. A second difficulty is to determine the significance of the characteristic in question. Red hair has a significance as an inherited characteristic. It has an additional significance, perhaps, as denoting a certain temperamental background in that individual as distinguished from others, with the possibility of certain social reactions under varying circumstances. It is widely held that morals are environmental in origin. Locke went so far as to say that all our ideas are of this nature.

The problem is difficult of approach, for each human being, for example, represents a unique experiment of Nature; so how can we make comparisons? The whole subject is very confusing. It would be easier if we could only study an individual without heredity or without environment. But there is a critical case that has already thrown some light on this difficult subject. It is the case of identical twins. Identical or single ovum twins are so closely alike that they cannot be distinguished, physically or psychically, and they are now the subject of intensive study by zoölogists and psychologists.

Are they really identical? The problem in the human is difficult for experimental study. But Nature is carrying on an experiment which can be studied in some if not all of its stages in the life cycle of Dasypus novemcinctus. This armadillo has generally litters of four young from a single ovum, "identical quadruplets". Histological study of the developing fertilized ovum shows no indication of separation into four individuals until some thousands of cells have been formed.

If, then, identical human twins are developed like the armadillo, from a single ovum and a single sperm, they are truly identical, so far as can be determined at present. Such twins separated soon after birth, brought up in different

environments and subjected to comparative study may throw further light on what characteristics may be regarded as due to heredity and what to environment.

To the physician these questions are of the greatest importance. The studies of Bauer, Draper, Kretschmer and others may throw much light on places now hidden in darkness. Constitutional biological superiority is shown in the famous Kharkov wheat, insusceptible to rust, that played so great a part in saving the wheat growers of our West. Corresponding inferiority is illustrated by studies of families of patients affected with otosclerosis and degenerative atrophy of the acoustic nerve, and is strongly suggested by studies of the occurrence of dementia praecox and diabetes in identical twins. There is opened up a great field full of exciting possibilities.

That hereditary influences have some part in the occurrence of disease has been recognized for centuries. Now Science is trying to make quantitative determinations, which should be regarded as attempts at quantitative exactitude rather than as even temporary halting places.

Somehow constitution determines susceptibility to disease. A scientific solution of the problems involved may not be close at hand, but a determined effort is now in the making, with enough in the way of results to stimulate still further studies. "It may be that the therapeutic results will be just the same regardless of our attitude toward genetics". Perhaps, but a knowledge of genetics may determine our therapeutic procedure.

MISCELLANY

THE HOPKINTON OCCUPATIONAL THERAPY CENTER

There has always been a need for a stepping-stone from the State Hospitals back into society for the mental patients who are on the road to recovery. The Occupational Therapy Center at Hopkinton is the only place to which patients from mental hospitals of this State may be sent when it is thought that their recovery will be hastened by a removal from the institutional to this more normal home environment. From this point they are prepared to step out into the world again to resume their former places or to fill better positions in the community.

More than twenty years ago the State Board of Insanity asked the Legislature for money to purchase land and build a convalescent home for mental or nervous patients who did not need further institutional care and for others—simple "nervous breakdowns." All efforts in this direction failed of recognition in our Massachusetts State Legislature, although for several years efforts were made to stimulate its interest to appropriate money for this purpose.

Finally the demand for a place to send women whose continued stay in the State Hospitals could not further benefit them, but who were not ready to meet the demands of society, was so great that Miss Marie L. Donohoe, then the Head Social Worker at the Boston State Hospital, and Dr. E. C. Noble, the Assistant Superintendent, appealed to private subscribers for funds to establish a center to which could be sent some of the many women who needed to be transferred to a more normal environment. Dr. Noble gave his farm in Hopkinton for a nominal rental, and Miss Donohoe took upon herself the duty of organizing the occupational center, giving liberally of her time and personally superintending the instruction of the patients in therapeutic occupations. It was the desire of those interested to develop types of work which should not only be interesting to the patients themselves, but should have market value and thus yield some return. The undertaking has purposely been kept to a small scale, because it has been conceived as an experiment. The result has been gratifying to all concerned.

The present home accommodates ten or eleven patients and is entirely free from an institutional atmosphere, the women being treated as if they were all members of one family. Some patients arrive very depressed and unhappy, frequently asking if they will ever be able again to live among their friends. Among patients of this type who have been discharged, one, who has gone back to her home and children, writes "everything is fine!" Another says that she has "a good position and is enjoying life so much!" All the patients enjoy daily walks, from which they receive great benefit.

After the Center has been established and the work in full swing for some years, Miss Donohoe resigned to take an important teaching position. Miss Armstrong, who succeeded Miss Donohoe as Social Worker at the Boston State Hospital, took charge of the work at the Center. Shortly after, an occupational therapy worker was employed to assist in the work. This worker has been very successful in interesting the patients under her care in occupations which are helpful to the patient. The money the patients receive for their work is often all they have in the world; it enables some of them not only to pay something toward their board, but to save a little to take away with them when they return to their homes.

The work accomplished in these years suggests that a number of such institutions as this Center might well be included in the State Hospital System. It would be well to try out a similar experiment for men, with appropriate occupations. I cannot too strongly urge the economy to be gained in dollars and cents, as well as the economy in the far more important field of human energy which is to be accomplished by hastening the recovery of every curable patient in our State Hospitals.—*Bulletin Massachusetts Society For Mental Hygiene.*

FIELD INVESTIGATION OF CANCER

Surgeon J. W. Schereschewsky of the United States Public Health Service has been directed to proceed from Boston to Washington for conference in connection with field investigation of cancer.

CORRESPONDENCE

THE BAKER MEMORIAL

Massachusetts General Hospital
Boston (14), Feb. 13, 1929.

Editor, N. E. JOURNAL OF MEDICINE:

The new building now being erected by the Massa-

chusetts General Hospital has been christened by the Board of Trustees, "The Baker Memorial."

The building is so named because by far the largest individual gift comes from Mrs. Mary Rich Richardson, who left the money as a memorial to her father and mother, Richard Baker, Jr., and Ellen Maria Baker.

Yours very truly,
F. A. WASHBURN, *Director.*

THE QUESTION OF DIAGNOSIS OF ACUTE RESPIRATORY DISEASES

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

February 13, 1929.

Editor, NEW ENGLAND JOURNAL OF MEDICINE,

I note in your editorial in the February 7 issue under the title "How Generally should the Diagnosis of Influenza be applied to the Existing Epidemic" the suggestion that it would be helpful if some definite instructions as to what conditions should be reported as influenza should be given.

This was precisely the question that was asked one of the committees appointed at the Surgeon General's conference in Washington in January. The committeee, however, felt that such a definition was impossible. As a matter of fact, it would be extremely difficult for us to put down just what should and should not be reported as measles, diphtheria, infantile paralysis, lobar pneumonia, or any of the other diseases that are reportable. We also realize that in regard to influenza the confusion is so complete that the reports indicate the prevalence of apprehension in regard to this disease rather than the prevalence of the disease itself. I should be glad if any of your readers could suggest any way in which we could soundly draw up the definition suggested or in any other way clear up the confusion. I must admit that I was very much disappointed at the group of competent individuals at the Surgeon General's conference refusing to assume this extremely difficult task.

May I also point out that in the same issue of the JOURNAL I am again given credit as in the newspapers for the differential diagnosis between colds, grippe and influenza as depending upon the member of the family unit afflicted. Such a definition is far too brilliant to have emanated from me and was originally propounded, so far as I know, by Dr. Roger Lee. However, as triviality is even more incompatible with his official position than mine, he has not started action for plagiarism.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

REGISTRY OF TECHNICIANS OF THE AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, METROPOLITAN BUILDING, DENVER, COLO.

Dr. Sidney C. Dalrymple,
Newton Hospital,
Newton Lower Falls, Mass.

It has been suggested by the Board that a statement be published in the local medical journals apprising the medical profession of the establishment of our Registry of Technicians.

The editor of the paper may be approached with a copy of the enclosed statement for insertion in the journal.

Fraternally yours,
PHILIP HILLKOWITZ,
Chairman of the Board.

In accordance with the trend of the times, the practice of medicine is utilizing more and more the services of trained lay help. The advent of the laboratory as an indispensable aid to the diagnosis of disease has created a new specialty in medicine; that of clinical pathology. In order to carry on the numerous technical tests required in scientific diagnostic procedures, the laboratory director has found it necessary to train the technical personnel. With the standardization of hospitals and the urgent call for qualified laboratory assistants there has arisen a demand for proper standardization of the preliminary education and technical training of those enrolled in this new profession.

There has also been a desire on the part of those engaged in this useful calling to raise their status, similar to the evolution of the trained nurse of a generation ago. This want is now being taken care of by a national organization consisting of a body of men who are most vitally interested in elevating the intellectual and technical status of laboratory workers. The American Society of Clinical Pathologists has taken upon itself the task of organizing a Registry of Technicians with rules under which those qualified by education, technical instruction, and moral character will receive a certificate.

The subject is of interest to physicians in every field of endeavor as many of them are desirous of securing the services of technicians to carry on the routine laboratory procedures.

There is no doubt that the elevation of the laboratory technician to the status of a respected and useful calling will be a great help to the medical profession, to the patient, and to the scientific practice of medicine.

The headquarters of the Registry of Technicians of the American Society of Clinical Pathologists are located in the Metropolitan Building of Denver, Colorado.

Another very desirable feature of the Registry is the facilities it offers in finding suitable placement for registrants and in aiding physicians to find desirable applicants.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.,
January 26, 1929.

Editor, THE NEW ENGLAND JOURNAL OF MEDICINE.

In addition to the articles enumerated in our letter of December 29th, the following have been accepted:

Ciba Company, Inc.
Lipoiodine—Ciba, Diagnostic
Ampules Lipoiodine—Ciba, Diagnostic, 5 cc.

H. K. Mulford Co.
Acidophilus Bacillus Liquid—Mulford

E. R. Squibb & Sons
Dandelion Pollen Allergen Solution—Squibb; English Plantain Pollen Allergen Solution—Squibb; Goldenrod Pollen Allergen Solution—Squibb; Perennial Rye Grass Pollen Allergen Solution—Squibb; Ragweed (Dwarf) Pollen Al-

lergen Solution—Squibb; Ragweed (Giant) Pollen Allergen Solution—Squibb; Red Top Pollen Allergen Solution—Squibb; Russian Thistle Pollen Allergen Solution—Squibb; Sunflower Pollen Allergen Solution—Squibb; Bermuda Grass Pollen Allergen Solution—Squibb, 5 cc.; June Grass Pollen Allergen Solution—Squibb, 5 cc.; Mugwort Pollen Allergen Solution—Squibb, 5 cc.; Orchard Grass Pollen Allergen Solution—Squibb, 5 cc.; Sagebrush Pollen Allergen Solution—Squibb, 5 cc.; Western Ragweed Pollen Allergen Solution—Squibb, 5 cc.

Yours truly,

W. A. PUCKNER, *Secretary*,
Council on Pharmacy and Chemistry.

TUBERCULOSIS ABSTRACTS

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Statistical and clinical research within the last few years has brought into sharp relief the problems of tuberculosis among young men and young women between the ages of 15 and 25, including those in high school and in industry. Many theories that might account for the lag in the reduction of tuberculosis among adolescents and youths, have been advanced, but none have been proved. At present, the facts are too meager to serve as a basis for specific action.

THE NEGLECTED AGE

While the mortality from tuberculosis in general had declined 36 per cent. in the last decade, the tuberculosis death rate at ages 15 to 25 had declined only half that amount. The greatest decline was shown for children under 5, their tuberculosis mortality having been reduced over one-half in the decade. In the age-period 25 to 44, the rate had declined 42 per cent. For children aged 5 to 14, the decline was almost the same. Even the mortality of older persons past 65 showed a decline of 31 per cent. The young group, 15 to 24, alone had made little progress.

Classification according to sex shows great disparity between males and females. For the 15—19 group, the death rate for girls is about 75 per cent. higher than that for boys, and at ages 20—24, the women have a death-rate 20 to 25 per cent. higher than the men. This disparity has been visible in the United States figures since 1900, but the variations have become greater in recent years.

The same phenomenon has been noted by Green, who made an analysis of the tuberculosis mortality of Cleveland; *viz.*, that the mortality among females aged 15—24 was considerably higher than for men of the same ages and that their mortality was decreasing much more slowly.

The Metropolitan Life Insurance Company finds that the excess of mortality of young females did not appear in their figures until about 1915. Their comment is as follows: "Contemporaneous with a declining death-rate, something has occurred within the past fifteen years to cause the mortality among the young white women to be higher than that of young white men."

These phenomena are made more striking by comparison with the figures for England and Wales. The decline in the general tuberculosis death-rate has been similar for both countries, being somewhat accelerated in the United States. But from a recent analysis of the age and sex incidence of English figures by Cobbett of the University of Cambridge, he concludes that "the decline (in tuberculosis mortality) has been smallest in childhood and old age, greatest between 15 and 25 . . . Between 15 and 25 . . . young women benefited rather than young men."

The problems of mortality of this young group are not peculiar to tuberculosis alone. A recent

Poster in three colors designed to interest high school students

analysis of heart disease figures shows that, in the last ten years, heart disease had *declined* in every age-group up to age 45 except young people aged 15 to 24.

Various causes are adduced by many writers. The increased industrialization of women which took place during the war years, the extra-curriculum activities of high school and college students, the physiological changes following the adolescent period, the dieting fad—all these in varying degree may have had their part in the result. It is, perhaps, trite to say that the group of young people aged 15 to 24 is the one which must "carry on" for the entire country. We have intensive health activities and services for the infant, the pre-school child, elementary school children, mothers, men in industry, and yet these millions of boys and girls and young men and women, who are making all their adjustments to life at this critical period, are left untaught in regard to health. Surely, a neglected age.—*Jessamine S. Whitney, Health in High Schools, Nat. Tuber. Assn., 1927.*

TUBERCULOSIS AMONG HIGH SCHOOL STUDENTS

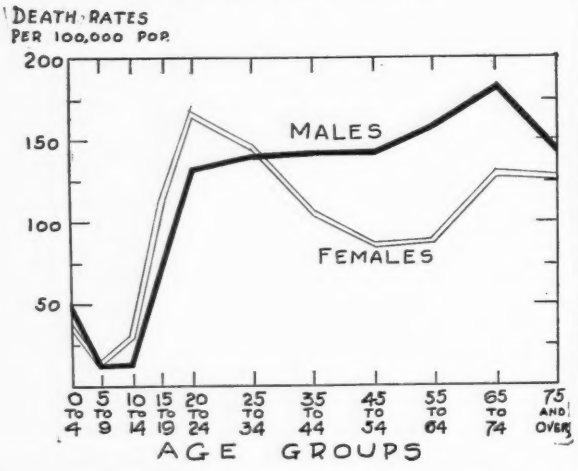
The author, during recent years, has examined a large number of high school students in Chautauqua County, New York. Of the first thousand examined, 1.3 per cent. were found to have tuberculosis of the lungs, either in a healed or active state. A relatively large part of the active cases were athletes engaged in the major sports. Seventeen were listed as suspects. One per cent. of the student body had heart complications. More than 22 per cent. had enlargement of the thyroid gland.

When tuberculosis is found, those who control to any great extent the activities of the group are so

notified. The parents are informed as to the proper care of the children, and the school authorities have been most co-öperative in their efforts to prevent overwork of those affected.

Thus far, all but the active cases have been kept in school, and yearly re-examinations show that most of them are doing well. The plan outlined would seem to preclude the possibility of damage through mental or physical strain sufficient to produce a relapse of the disease. The present tendency in schools is to push the students to the limit of their mental capacities, and the student with a keen mind is urged to take on additional study loads in order to finish the grades at an earlier age. Such a plan may be commendable for healthy children, but it certainly is not conducive to the health of those who are below par physically. The examination of the school children has been a real

DEATHS FROM TUBERCULOSIS BY AGE AND SEX GROUPS
U. S. Registration Area, 1923



help in dissipating certain of the terrors which tuberculosis formerly had in the minds of many of the people.

Many of the cases found during school examinations are destined to become the active cases of the future if they fail to carry out proper precautions at this time. Judging from the histories of many young adults admitted to the Newton Memorial Hospital, the writer feels sure that pulmonary tuberculosis, probably in a healed state, could have been demonstrated during their high school careers, had they been properly examined for the disease.

The writer's present plan is to examine all high school seniors and arrange for the examination of every pupil applying for working papers. If possible, he hopes to make the securing of working papers contingent upon physical and x-ray examinations of the chest. If the disease is not recognized at this time, a relapse is likely to occur as a result of changed conditions and the pressure of competition with healthy workers. In addition to the seniors and students leaving school, "contacts" and those with symptoms in the past are examined, in the hope that eventually the grades will be reached and the entire school population covered. Wide use of the x-ray is necessary in school examinations. If funds are available, every student should be pictured. Such a policy will prove to be a wise investment of public funds.

When a diagnosis of tuberculosis in any form is made on a child, a thorough study of the family unit should follow. If all members of the family are alive, such a procedure is very likely to lead one to a tuberculous parent and possibly infected brothers and sisters.

The public school is one of the most important fields in the control of tuberculosis, and its potential resources of clinical material should be thoroughly exploited. When such a policy is universally adopted and is considered as essential, rather than an "extra part" of case-finding machinery, then we will approach with greater strides that day of all days when the great white plague is mastered and is no longer a menace to human kind.—*Tuberculosis among High School Students, Walter L. Rathbun, M.D., Jour. of Outdoor Life, Jan., 1927.*

OBITUARIES

A MEMORIAL

In the death of Medical Examiner, Andrew Hall Hodgdon of Dedham, Sept. 13, 1928, the Massachusetts Medico-Legal Society has met with a serious loss.

Born in West Cambridge (now Arlington), Mass., October 27, 1857, graduating from Harvard in 1879 and from Harvard Medical School in 1883, he served as house-officer in the Massachusetts General Hospital and the Boston Lying-In Hospital. He settled in Dedham in 1884, was at once appointed medical examiner and became a member of our Society July 16, 1884.

Son of Dr. Richard Lord Hodgdon and grandson of Dr. Timothy Wellington, both of whom practised in West Cambridge, he inherited the instincts and traditions of the profession. Possessing quick perception, a large degree of tact, high ideals, and withal, a ready sympathy, he was a practitioner of the highest type. Beloved of all his patients, his practice naturally remained large to the end of his forty-four years of service in Dedham.

His broad sympathies and high abilities served to make him a leader in the life of his town and he exemplified to a marked degree that broad spirit of co-öperation with community interests that is so admirable in a physician. For many years he was a trustee of the Dedham Public Library, a member of the School Committee for twenty-four years and for twelve years its chairman, a director of the Dedham Mutual Fire Insurance Company and of the Dedham National Bank and president of the Dedham Institution of Savings.

Such a man is sorely missed, but his life is a shining example of unselfish work and is an inspiration to all who knew him.

OLIVER H. HOWE,
WILLIAM O. FAXON.

RESOLUTIONS ON THE DEATH OF DR. FRANK WILLIAM GEORGE

At a meeting of the Wachusett Medical Improvement Society held February 6, the following resolutions were adopted.

Dr. Frank William George, the son of William and Wetha George, was born in Bristol, N. H., February 27, 1878, and died in Worcester Dec. 18, 1928.

His preliminary education was obtained in the schools of Bristol, N. H., Tilton Seminary and Wesleyan University.

He graduated from the Harvard Medical School in 1902, and after six months in the Boston City Hospital, served the regular internship in the Worcester City Hospital.

He practiced for a few months in Princeton, Mass., and then located in Athol, Massachusetts in 1904, where he was in general practice for about four years. He then took a service at the Children's Hospital, Boston, and in 1908 located in Worcester, Mass., where he remained until his death.

He was particularly interested in Roentgenology and Orthopedic Surgery to which he devoted his full time during his later years. He was appointed Assistant Roentgenologist to the Worcester City Hospital in November 1908, and Roentgenologist and Assistant Orthopedist to Memorial Hospital, Worcester, Mass., in 1910.

He was among the first to hear the call of war and his record speaks for itself. He was commissioned Captain April 9, 1917. After four weeks' training at Fort Benjamin Harrison, Indiana, he was assigned to the 52d Coast Artillery Corps at Fort Adams, Rhode Island, as Regimental Surgeon.

He sailed with the first American Expeditionary Forces for France August 14, 1917.

He served in France as Adjutant to Corps Surgeon, Headquarters, Heavy Artillery at Aube also as Regimental Surgeon 52nd Regiment of Heavy Railroad Artillery.

He organized Camp Hospital No. 13 and was Acting Adjutant for the Hospital and Camp Surgeon until May 1918, then Commanding Officer of Camp No. 13 until Nov. 11, 1918. He was then transferred to New York City Hospital at Chateaux Reaux, where he was Chief of the Orthopedic Service. After six weeks he was transferred to Base Hospital at Savenay and then made Chief of Operating Room.

While in France he was commissioned Major and was discharged at Camp Dix, New Jersey, March 25, 1919, with the rank of Lieutenant Colonel.

On his return to Worcester he resigned his appointment at Memorial Hospital to take charge of the Orthopedic Service at the Worcester City Hospital, and from that time confined his work to Orthopedic Surgery and Roentgenology.

In 1924 he organized the U. S. A. General Hospital No. 70, Reserve Unit, and was commanding Officer with rank of Lieutenant Colonel. He was Chief of Service Orthopedic Department, Worcester City Hospital, Roentgenologist at Memorial Hospital, Consulting Orthopedic Surgeon of Holden District Hospital and Louis Pasteur Hospital. He was a member of the American College of Surgeons, American Medical Association, Massachusetts Medical Society, the Boston Orthopedic Club, The Wachusett Medical Improvement Society, Aletheia Grotto, A. F. & A. M., Knights Templars, Worcester Club, Worcester Country Club, Petersham Country Club and Worcester Fox Club.

His was an active and wholesome life, devoted to his profession and with a reputation extending far beyond the limits of Worcester. He gave his best and beyond his strength in the interests of his patients.

Following a busy day, the call came suddenly, a few moments after his return from a sick patient.

WHEREAS:—In the death of Doctor George this Society has lost an honored and beloved member—

BE IT RESOLVED, that the foregoing be entered in the records of the Society, and that a copy be sent to the family of the deceased.

(Signed) O. Draper Phelps,
G. Arnold Rice,
Ernest B. Emerson,
Committee on Resolutions.

NEWS ITEMS

FREE BOOK FOR MEDICAL STUDENTS WHO INTEND TO VISIT HUNGARY—A guide book for physicians and medical students who intend to visit Hungary is being distributed gratis by the Cunard Line. It gives full information concerning the conditions under which members of the medical profession may continue their studies in Budapest, giving courses which may be taken up at the various clinics and universities. The book may be obtained by dropping a card to the Cunard Line, 25 Broadway, New York.

CHILDREN'S HOSPITAL BUILDING FUND.—Gifts totaling $885,381.64 have been reported to the treasurer, Mr. S. H. Wolcott, toward the Children's Hospital Building Fund. This includes $191,427.14 reported by the Women's Committee; $34,253.00 by the Nurses' Committee;; $272,081 by the Doctor's Committee; $387,620.50 by the Men's Committee.

Among the special gifts are $150,000 for the physiotherapy buildings given by Mr. and Mrs. Louis F. Stanton Bader of Dover; $110,000 for the complete second floor of the Nurses' School and Home given by George P. Gardner, Mrs. George H. Monks and William A. Gardner; $100,000 for the new outpatient department, the new admissions department and a new emergency unit, from the Henry Clay Jackson Fund; $75,000 for the Neurological Department from the Julius Rosenwald fund and Mr. and Mrs. Alfred K. Stern of Chicago; $25,000 for the main entrance hall and a classroom in the Nurses' School and Home from Mr. and Mrs. Gordon Abbott, and $10,000 for the staff library from Mr. and Mrs. Henry Hornblower.

NOTICES

CONFERENCE ON THE PREVENTION OF BLINDNESS

New York City—Feb. 18. Practically all of the forces engaged in the movement for the prevention of Blindness in America will meet in St. Louis, Mo., next October. The conference will be attended by men and women from every section of the United States and Canada who are professionally concerned with conservation of vision—oculists, public health officials, safety engineers, illuminating engineers, educators, research workers, social workers, and others. The occasion will be the 1929 annual convention of the National Society for the Prevention of Blindness. With the announcement that St. Louis had been selected as the meeting place, Lewis H. Carris, Managing Director of the Society, said:

"Missouri has been for many years in the forefront of all efforts to combat the principal causes of blindness, and a resident of St. Louis, Mr. Leslie Dana, is the donor of the medal which is awarded each year for the most outstanding achievement in the prevention of blindness. The Missouri Association for the Blind, the State Commission for the Blind and the State Board of Health are all taking part in prevention of blindness work in Missouri.

"At Rolla, Mo., the United States Public Health Service, in co-öperation with the state board of health, maintains a free trachoma hospital where much important research is now under way by Dr.

Paul D. Mossman; persistent efforts are being made to eradicate this disease of the eyelids which so often leads to loss of sight. In Missouri, also, doctors and midwives are required by law to use a prophylactic solution in the eyes of all babies at birth, as a means of preventing ophthalmia neonatorum, commonly known as babies' sore eyes.

"Dr. Harvey J. Howard, Director of the Macmillan Research Fund of St. Louis, and of the Department of Ophthalmology in the Medical School of Washington University, has been elected to the Advisory Board of the National Society for the Prevention of Blindness. Dr. Howard is a leading authority on trachoma, with seventeen years experience in various medical capacities in China where trachoma conditions are probably the worst in the world."—*Bulletin of the National Society for the Prevention of Blindness.*

MENTAL HYGIENE.—A course entitled Keeping Mentally Fit, Mental Hygiene for Adults is to be given in the Gardner Auditorium, State House, beginning February 28, at 7:30 p. m. This course is offered by the Division of University Extension of the State Department of Education in co-öperation with the Massachusetts Society for Mental Hygiene.

The opening lecture will be given by Dr. Joseph Jastrow, formerly Professor of Psychology in the University of Wisconsin, and the author of a recently published book under the title "Keeping Mentally Fit: A New Art—The Need of the Times" which has been widely acclaimed. The title of this book will also be the subject of his lecture. Other lecturers include Dr. James J. Walsh, with whom readers and audiences through the country are acquainted; Dr. Thomas V. Moore of the Providence Hospital, Washington; Dr. Douglas A. Thom; Dr. Karl M. Bowman; Dr. Abraham Myerson, all of Boston; Dr. V. V. Anderson of the R. H. Macy Company of New York; and Dr. Esther Loring Richards of Johns Hopkins University.

The following is a list of the lecturers and the lectures:

Keeping Mentally Fit: A New Art—The Need of the Times—Lecturer: Joseph Jastrow, Ph.D., Formerly Professor of Psychology, University of Wisconsin.

The Child is Father to the Man—Lecturer: Douglas A. Thom, M.D., Director of the Division of Mental Hygiene, Mass. Department of Mental Diseases.

Fatigue, Worry, and "The Blues"—Lecturer: Karl M. Bowman, M.D., Assistant Professor of Psychiatry, Harvard Medical School.

Do We Americans Really Live?—Lecturer: James J. Walsh, M.D., Medical Director, Fordham University School of Sociology, and Professor of Physiological Psychology at Cathedral College, New York City.

The Job and Mental Health—Lecturer: V. V. Anderson, M.D., Director of Medical Research, R. H. Macy & Co., New York.

Emotion and Intellect in Adult Life—Lecturer: Thomas Verner Moore, M.D., Director, Clinic for Mental and Nervous Diseases, Providence Hospital, Washington, D. C.

Normal and Abnormal Fear—Lecturer: Abraham Myerson, M.D., Professor of Neurology, Tufts College Medical School.

"Nerves": Their Meaning in Our Lives—Lecturer: Esther Loring Richards, M.D., Associate Professor of Psychiatry, Johns Hopkins University, Baltimore.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C.	April 29, 1929.
At Chicago, Ill.	April 29, 1929.
At New Orleans, La.	April 29, 1929.
At San Francisco, Cal.	April 29, 1929.
At New York, N. Y.	April 29, 1929.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon General.*

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

SENIOR TOXICOLOGIST

Applications for senior toxicologist must be on file with the Civil Service Commission at Washington, D. C., not later than March 13.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

REPORTS AND NOTICES OF MEETINGS

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The Wachusett Medical Improvement Society met at the Holden Hospital February 6, 1929, with fourteen members present.

Immediately after supper the business meeting was opened by the reading of the resolutions on the death of Dr. F. W. George.* It was moved by Doctor Washburn and seconded by Doctor Trask that a copy of the resolutions be sent to Doctor George's widow and a copy be kept in the records of the Society. The resolutions and the motion were unanimously adopted.

Dr. Frederick R. Williams, speaker of the evening, read a paper on the "Management of Varicose Veins of the Legs." The following are some of the points stressed in the conclusion: varicose veins can be cured; compression is still the most efficacious measure and it must be extended over a long period; the cases should be carefully followed up; accurate measurements of the legs to be taken and recorded;

*See page 404 for resolutions.

associated conditions like obesity and hyperthyroidism should be investigated and treated accordingly.

Doctor Rice brought up the question of electricity in the treatment of ulcers, and Doctor Leland reported a case successfully treated by this method.

Doctor Williams stated that electricity in the treatment of varicose ulcers of the legs is not used in the large clinics. Several questions from the different members were satisfactorily answered. The meeting was adjourned at 10 P. M.

HARVARD MEDICAL SOCIETY

On Tuesday evening January 22, 1929, in the amphitheatre of the Peter Bent Brigham Hospital the Harvard Medical Society held its regular meeting. After the presentation of cases Dr. H. A. Christian introduced Dr. Reginald Fitz who presented a paper on "A Medical Fashion Show." He was followed by Dr. Cornelius E. Dyke, of the X-ray Department of the Peter Bent Brigham Hospital, who discussed "Post-Operative Massive Collapse of the Lung."

The first case was presented by Dr. Sagebiel of the Surgical Service. The patient was a sixty-two year old agent who has been perfectly healthy except for measles in childhood and typhoid fever many years ago. About a year ago he began to complain of gaseous eructations after meals with a slight amount of distress. Two months before entry the distress became marked and was accompanied by much gas. He had no jaundice and no abdominal pain. Two weeks ago after a light supper he went to bed and was awakened by a sharp stabbing pain in the upper abdomen slightly to the right of the midline, radiating across the abdomen. It was accompanied by a sense of rigidity. Morphine relieved the pain, but left a residual soreness which continued until admittance to the hospital. At no time was there nausea, vomiting or jaundice.

Examination showed a mass in the epigastrium which was tender on deep palpation. It was rounded and soft, but not nodular. On entrance the temperature was 97°-102° but gradually diminished to 100°. The mass increased in size and the liver dulness was replaced by tympany. Intravenous cholecystograms showed a normal gall-bladder and a large gas bubble between liver and diaphragm. A diagnosis of subphrenic abscess of unknown etiology was made and operation decided upon. The incision was made in the upper abdomen just below the xiphoid and on going through the peritoneum much foul gas escaped followed by thick B. coli pus. Six hundred cubic centimetres of this pus were aspirated and drains inserted. A gastrointestinal series revealed a postural penetrating ulcer of the first part of the duodenum.

The second case was presented by Dr. MacEachern of the Medical Service. The patient, a thirty-two year old machinist, came to the hospital complaining of intermittent chills and bloody urine. His mother died of kidney trouble. He had several childhood diseases, influenza in 1918, and thought he had had malaria six years ago. He noticed during the last two years that when his feet got wet or cold, he had a severe chill followed by the passage of bloody urine. Any sudden change from warm to cold caused these attacks. They were of short duration and all symptoms would then disappear. Examination by pyelogram was negative. There was some fibrosis of the posterior urethra, inflammation of the trigone and the ureteral orifices were somewhat inflamed. The urine was a deep red color, but only showed 30-40 R. B. C. per high power field. The Wassermann was double plus and the Hinton positive. The patient was given intravenous arsphenamine and discharged.

Dr. Christian described the case as a typical example of paroxysmal haemoglobinuria, and explained that the attacks in all the cases came on under certain circumstances, namely the lowering of the blood temperature and then its return to normal.

In his introduction Dr. Fitz commented on the educational value of fashion shows in general, and proposed to hold a medical fashion show presenting a model doctor of the past generation and his medical problems, then a modern doctor, and finally ending with a prophecy of what the doctor of the future might be like in view of present tendencies.

The advances in bacteriology, hygiene, and public health have resulted in a marked increase in life expectancy. This gain has been accomplished by making the earlier years of life more safe. The infectious diseases of known etiology are now less fatal and common than they were a generation ago. On the other hand the infectious diseases of unknown etiology and new infections are encountered with increasing frequency. The problems of cardiovascular disease, cancer, and diabetes are of much greater importance to the modern doctor than to his predecessors and will become more important as length of life increases. The doctor of the future will perfect present methods for discovering the cause and prevention of the infectious diseases. More attention will be paid to the problems of old age, more emphasis given to the study of well people in order to keep them young as long as possible, and more consideration will be given to minor illnesses, the diet, exercise, and habits of living.

Dr. Dyke opened his discussion with a brief review of previous observations upon Acute Massive Collapse of the Lung with several theories of its causation. Until 1925 there had been only sixty-eight cases recorded in medical literature.

The pathology consists in collapse of the lung to a small heavy grey solid mass which does not crepitate. There is consequent displacement of the thoracic organs towards the affected side. Within twenty-four hours after collapse the patient shows a rapid pulse, increased respiratory rate, fever, and cyanosis. The diagnosis is confirmed by x-ray which shows a high diaphragm, and atelectatic lung, and displacement of the mediastinal contents to the affected side. Dr. Dyke pointed out that the condition does not occur on the side contralateral to the incision so that the high diaphragm is probably due to reflexes following the operation wound. The other contributory causes are a depression of the cough reflex with an obstructing collection of thick tenacious mucus in the bronchioles.

As a prophylactic measure Dr. Dyke recommended that the patient's position be changed every six hours to obviate collection of mucus; that sedatives which curtail the cough reflex be kept at a minimum; and that hyperventilation of the lungs with CO_2 –O_2 mixture be given periodically for forty-eight hours. For therapeutic measures after the condition appeared, he suggested that the head of

the bed be lowered with the patient lying on the uninvolved side, and that the patient should be encouraged to cough on the slightest stimulus so that the mucus which is the obstructing material will be raised. As evidenced by x-ray films, this treatment has met with gratifying success.

The Harvard Medical Society held a meeting at the Peter Bent Brigham Hospital Amphitheatre on Feb. 12, 1929, at 8:15 o'clock. Dr. Reid Hunt, Professor of Pharmacology at the Harvard Medical School, presided.

The first case was presented by Dr. Oljenick of the surgical service. The patient was an accountant of 37 years who had always been well until 1917 when shortly after enlisting in the army, he was suddenly taken sick. From the patient's description it was probably meningitis. From that time until now he has suffered from attacks of acute weakness, acute headache, vomiting, pain in the left parieto-occipital region, and throbbing synchronous with the heart beats. He was told he had pulmonary tuberculosis, his eyesight gradually, but steadily failed, and he was in and out of hospitals always with the same complaints. In December 1928 he had such an attack and at the Chelsea Naval Hospital some one listened to his head. The diagnosis, probably a congenital vascular lesion, was readily made. Physical examination on entrance into the Brigham Hospital showed weakness of the whole right side, increased reflexes, and a sustained ankle clonus, with a spastic gait on the right. The visual fields showed a clear-cut right-sided homonymous hemianopsia. A bruit is clearly heard. Since there were no sensory disturbances the lesion cannot be in the internal capsule, and very probably is somewhere in the optic tract.

The second case was presented by Dr. Tropoli of the medical service. The patient was a 31 year old shoeworker who entered the hospital complaining of headache and puffiness under the eyes of three months' duration. In 1918 he had the same symptoms and his doctor who found he had nephritis put him on a milk diet. He soon discontinued this and in 1921 entered the hospital with the same complaints. On a low protein diet his symptoms cleared and subsequently he was followed in the O. P. D. He comes in now with the same symptoms, but now there is more pathology. His fundi show definite arterio-sclerotic changes, his blood pressure is 185/106, and his urine shows a trace of albumen, more or less fixed specific gravity, and a sediment of cells and casts. His B. V. N. is 20-23 and the phthalein test is from 28-32. He was presented as a case of slowly progressive chronic nephritis.

The first paper on "The Mechanisms of Physiological Homeostasis" was presented by Dr. Walter B. Cannon. Man, said Dr. Cannon, lives in a fluid and not air medium, all the tissues of the body being surrounded by fluid of some sort or another. If this internal environment is constant, we are independent of the external surroundings. For this constancy or equilibrium which always exists, Dr. Cannon has suggested the term "homeostasis." There are many examples of this in the body.

This is well shown in the mechanism of muscular work. If dogs are run steadily on a treadmill, the blood sugar is lowered, but not dangerously because the liver is stimulated to give out sugar. If the liver is completely removed the blood sugar is lowered to the point of convulsions and collapse; intravenous glucose will correct this. Insulin intravenously lowers blood sugar, but at a critical point the sympathetic system stimulates the liver to give out sugar. This action is through the sympathico-adrenal mechanism for homeostasis. On the other hand the vago-insular mechanism normally acts to store sugar when it is present in abundance.

Another example is the maintenance of a constant body temperature. In vigorous exercise there is a great increase in heat formation, which if not eliminated would almost coagulate the body. Due to the dilatation of peripheral vessels and profuse sweating, a balance is maintained. If the temperature of the body tends to fall, the hairs stand on end to form a layer of non-conducting air and the vessels constrict, thus conserving heat. Further, the adrenal glands become active increasing the metabolism and shivering occurs, thus producing more heat.

Other examples are the acid-base balance in the blood and the oxygen tension in the tissues. If the amount of acid in the blood is increased by exercise, increased ventilation promptly excretes the volatile acids, and the alkali reserve of the blood is maintained. In these same active muscles the blood flow is up to nine times the normal volume and the oxygen utilization may be eighteen times what it is at rest. The extra blood comes from the constriction of the splanchnic vessels, the heart beats faster, and the carrying power of the blood is increased by more red cells coming from the spleen into circulation and more trips of the cells being made between the lungs and the tissues. All these changes are activated by the sympathico-adrenal system.

The homeostatic mechanisms are not under voluntary control, but they are normally operative. These mechanisms can be divided into two groups, the first being for material needs. These needs are met by storage and by overflow. The storage is attained by inundation, such as excess water, sugar, and salt in the skin, and by segregation such as glycogen in glycogen storage in the liver. The second group is for the body processes which are accelerated or slowed according to need.

The exterofective activities cause changes in the fluid matrix of the body and these are counterbalanced by the interoceptive activities of the sympathetic system. If the sympathetic is removed, as was done in cats, this balance is lost. Dr. Cannon suggested that many clinical conditions are possibly caused by impairment of this balance.

The second paper on "The Effects of Plasmophaerasis on the Water Balance and Metabolism" was presented by Dr. M. H. Barker. About a year ago Dr. Barker presented a paper before this society differentiating the so-called nephrosis and nephritis and emphasized the therapeutic value of a high rather than low protein diet. In this differentiation the blood picture showed a striking change. In nephrosis the total serum protein was reduced, the albumen-globulin ratio was reversed, the blood cholesterol was increased 50-500%, the phosphorus was increased and the calcium decreased. Histological examination of the kidneys showed tubular degeneration and old glomerular lesions. The idea

came that the results might be secondary to the low blood protein.

Dogs were bled on alternate days of small amounts of blood. Studies at various times showed that the blood picture and pathological changes in the dogs are identical with the clinical picture found in man.

Dr. Barker concluded that despite the small series of experiments (1) edema in dogs varying from a slight to a marked degree can be produced by plasmophaerasis; (2) the amount of edema seemed more closely associated with the level of the serum albumen fraction than with the total protein; (3) the basal metabolic rate fell with depletion of the blood serum; (4) the blood volume was unchanged in the edematous period; (5) the renal pathology was produced as indicated by albumen, casts, fat droplets, and products of renal cell degeneration in the urine, and by definite degeneration in the convoluted tubules.

Both papers were followed by very interesting discussions by Drs. O'Hare, Wolbach, Hunt, and the speakers.

MASSACHUSETTS MEDICO-LEGAL SOCIETY

The Massachusetts Medico-Legal Society held a regular meeting in the Warren Museum, Harvard Medical School, on February 6, 1929, at 2:30 P. M. Dr. Hunt of Worcester presided and introduced the speakers.

After the minutes of the last meeting had been read, a memoriam of Dr. Hodgdon of Dedham was presented. A nominating committee was appointed to report, in June, nominations for next year's officers. The first address on "The Advisability of Including Medico-legal Instruction in Nurses Curriculum" was given by Dr. Currier of Cambridge. Dr. Currier cited several cases in which a knowledge of medico-legal matters on the nurse's part would have saved much trouble. Nurses go into executive positions in small hospitals and make many mistakes. A constructive program advised by Dr. Currier consists in persuading hospital superintendents to give the nurses at least one hour's instruction each year in medico-legal subjects. This would serve to bring before them three times at least certain details and principles which they should know in order to co-öperate with the medical examiner. It is up to the medical examiners, Dr. Currier pointed out, to agitate this matter.

The second paper on "A Case of Criminal Abortion," was presented by Dr. Palmer of Whitinsville. Dr. Palmer told of how a doctor from Pawtucket was found guilty of producing an abortion in his district. He brought out the interesting point that according to the old law a doctor can be convicted of a felony if he administers abortifacient drugs regardless of pregnancy. This means that if a woman thinks she is pregnant and the doctor is sure she is not, he still cannot give her a placebo claiming it will induce abortion.

In the absence of Dr. Baker of Worcester, Dr. Hunt read his paper on "A Case of Infanticide". This case was reported to stress the importance of a careful medico-legal autopsy. The father was accused of the death of his illegitimate child on two charges: as the principal in the act, and as accessory before the fact. The man was acquitted of the first charge, but found guilty in the first degree of the second, and subsequently electrocuted. This is the first case in over a hundred years where a conviction has been obtained on this charge. The only reason conviction was obtained was the demonstration of paternity made possible by the accurate records of the clothing found on the body of the child.

At the close of the meeting Dr. G. B. Magrath called attention to the change of the death certificates which all doctors should note.

After adjournment until next June, refreshments were served.

DR. d'HERELLE LECTURES ON "BACTERIOPHAGE AND ITS RELATION TO THE CONTROL OF EPIDEMICS"

Dr. Felix d'Herelle lectured to the Connecticut Valley Branch of the American Society of Bacteriologists, Jan. 25, 1929, at Sterling Hall of Medicine of Yale University on "Bacteriophage and its Relation to the Control of Epidemics". Dr. d'Herelle is Professor of Bacteriology at the Yale Medical School, formerly Chief of the Laboratory Service of the Pasteur Institute and discoverer of bacteriophage.

In 1927 the Government of India asked Dr. d'Herelle to come to India and study the pathogenesis of cholera which was then widespread in that country. Dr. d'Herelle accepted the invitation and came to the hospital at Calcutta where he treated his patients with bacteriophage. He found:

(1) In those cases where the intestinal bacteriophage (which is present in the normal intestine and develops at the expense of B. Coli) does not adapt itself to the bacteriophagy of the invading vibrio, the patient quickly succumbs without any improvement, even transitory, being apparent.

(2) After an initial start of adaptation in which the virulence of the bacteriophage at no time goes above 5, (In the scale used a virulence of 5 indicates only a partial lysis) the virulence becomes attenuated and disappears. After a transitory improvement in the symptoms, corresponding to the weak virulence acquired, the condition again becomes aggravated and the patient dies within twenty-four hours following the disappearance of the virulence.

(3) When the virulence of the bacteriophage increases suddenly and reaches a virulence equal to, or greater than 8, the symptoms disappear with like rapidity, and the patient immediately becomes convalescent, whatever may have been the severity of the disease in the beginning.

(4) When the virulence increases more slowly, the disease is of longer duration and the variations in the symptoms follow a course which parallels the virulence of the bacteriophage. The condition improves permanently just as soon as the virulence reaches a value of 7, as a minimum.

It is also possible to demonstrate the action of bacteriophage by crucial experiment. It is known how to cultivate bacteriophagy in vivo with recovery by simply causing the patient early in the disease to ingest a bacteriophage of high virulence. In this way it should be possible to avoid the failures in the natural adaptation of the intestinal bacteriophage, and to reproduce at will the natural processes of recovery. This method has been applied in tens of thousands of cases of bacillary dysentery and recovery always took place in twenty-four hours.

He then proceeded from Calcutta to the province of the Punjab and applied the above method upon cases cared for in their own homes. In these cases the bacteriophage was administered to all the patients visited, for whom the parents accepted this

mode of treatment exclusively. Those patients who refused served as controls. Among 74 cases treated in this way in the Punjab, six died, a mortality of 8.1%. Among the 124 controls, seventy-eight died, a mortality of 62.9%.

Of the treated cases 26 received bacteriophage within the first six hours following the appearance of the initial symptoms. Of these none died. In 41 cases the administration took place between six and twenty-four hours after the onset of the disease. In this group, five or 10.2% died. There were seven cases in which the bacteriophage was given later than twenty-four hours, and of these one or 14.3% died.

Therefore bacteriophage should be administered as early in the infection as possible. It is competent to reduce bacteriophagy, but it can do nothing with lesions already formed.

At the beginning of cholera epidemics there is no bacteriophage in the intestines of the victims adapted to cope with the vibrio. Thus when a pathogenic vibrio is introduced the victim contracts the disease. When a man recovers by this process of the adaptation of the bacteriophage in his intestine to meet the vibrio, his stools are full of bacteriophage that feed on cholera bacteria. These spread in the environment and the epidemic declines. More and more recover producing more bacteriophage which ultimately stamps out the disease.

To prove this point the following experiment was made. Races of bacteriophage already adapted to the vibrio were introduced into villages during an epidemic. The method which experience has shown to be most practical consists simply in pouring cultures of the bacteriophage into wells of drinking water.

In one village the number of cases diminished rapidly and only four more cases developed, at the rate of one a day. In a second village ten cases developed on the day of distributing the bacteriophage, six the next day, and one on the day following. In three villages the last case developed upon the day following the implantation of bacteriophage, and in four villages the epidemic ceased upon the day the water was treated.

Today the Government of India maintains a laboratory for the preparation of culture of adapted bacteriophage on a large scale. The prophylaxis and treatment of cholera, (as well as dysentery) will be applied on a large scale during the cholera season which begins generally in March.

HARVARD MEDICAL SCHOOL NEWS

At the Harvard Medical School on January 30, 1929 Colonel L. W. Harrison, Adviser to the British Ministry of Health on Venereal Diseases and in charge of the Modern Venereal Disease Clinic at St. Thomas Hospital Medical School, London, spoke on the "Principles and Results of the British Scheme for Combating Venereal Diseases".

The general provision for treatment of venereal diseases is made by 127 volunteer hospitals throughout England and Wales. Any hospital on application and if found to be satisfactory may conduct a clinic. This work is done through the Council for the Control of Venereal Diseases acting as the agent for the Ministry of Health. Three-fourths of the expenses of this Council are paid by the national government.

There are several factors concerned in this treatment. First, hospitals are found more suited than special clinics because a larger attendance is gained at the hospitals. Second, the personality of the officer who conducts the treatment has much to do with the attendance; a sympathetic and well-trained officer draws a much greater attendance. Thirdly, the convenience of the treatment centre counts for much. Where many patients are seen quickly, and privacy is assured, more patients come for treatment. The hospitals through workers find out the social conditions of girls and by placing them in suitable homes keep them from becoming prostitutes. The treatment centres are managed by medical officers, and treatment is free.

Private practitioners benefit through the work of the council. Doctors are given arsphenamine compounds and laboratory tests are done without cost. Advice and consultation are available from the treatment centre.

The results are gratifying. The control of syphilis has been augmented. This is shown in several ways; the incidence of general paresis and congenital syphilis has decreased, and especially in the army, navy, and air force. From this last one can infer that the incidence of syphilis in the general population has decreased. In the control of gonorrhea not so much can be said. It is more difficult here because there is no specific remedy to make a patient rapidly noncontagious. But even with better registration of cases, blindness from gonorrheal infection has decreased.

The cost of this work amounts to about five cents per capita of the population per annum. Even with an increased number of patients, the cost is getting less due to better organization. The work is made as unofficial as possible. The results have been encouraging, and administrative changes are being introduced.

The Cutter Lecture on Preventive Medicine was given at the Harvard Medical School on Feb. 13, 1929 by C.-E. A. Winslow, Professor of Public Health in the Yale School of Medicine, who spoke on the subject "Fresh Air and Ventilation in Relation to Human Health and Comfort." Dr. M. J. Rosenau presided.

Dr. Winslow began his paper by emphasizing that in the management of the living machine, the constitutional diathesis is important. Disease is no longer to be considered only as the invasion of the body by an organism, but the entrance of this organism into a particular body under certain conditions. According to ancient medical teachings certain environments of man were considered: food, fresh air, exercise and rest, sleep and wakening, repletion and evacuation, and the passions and affections. We know something about most of these factors, but more recently we have come to consider the importance of fresh air.

Up to the time of Pasteur the miasmatic cause of disease was endorsed. This theory has been discarded and we regard air from a different viewpoint. Its chemical composition is known, and though the plants carry on photosynthesis and the animals metabolize, the composition of it undergoes changes; the ocean acts as a universal buffer. The oxygen tension is important as shown by A. V. Hill in experiments on athletes and by Haldane and others in experiments at different altitudes. The carbon

dioxide pressure is also important as it has been shown that small amounts in the atmosphere are necessary for life. It has been demonstrated that the arthritic and neuralgic pains which come on with lowered barometric pressures are caused by the change of the gas pressures in the blood. And so, while the air in itself is not a cause of disease, its composition and temperature add much to human comfort.

Normal human existence brings on certain changes in air: reduction in oxygen, increase in carbon dioxide content, also an increase in the imperfectly oxidized organic products, moisture, and temperature. The change in the first three factors is so slight as to be of no great importance. The fourth and fifth are the most important. The problem of the surrounding air is the physical and cutaneous reaction, rather than that of the respired air, which needs regulation. This depends mainly upon the loss of body heat through evaporation, radiation, and convection, and these in turn depend upon the temperature, movement, and moisture of the surrounding atmosphere. Of these, the temperature is the most important. Not only does the high temperature raise the metabolism, but it disturbs the acid-base equilibrium of the body, and consequently the body efficiency is impaired. It was found that 15% less work was done at 75° F. than at 68° F., and 29% less work at 85° than at 68° F. An optimum standard for winter temperature has been set; this is 66° F. in saturated air moving 15-25 feet per minute. For school children 2° lower should be maintained because of their higher metabolism and greater heat production.

What to do to maintain this temperature is the next consideration. The most obvious and often forgotten thing is to turn off the heat when the temperature is too high. It has been found that window ventilation from top and bottom in the ordinary room is sufficient. In the schoolroom the modified window ventilation system is most efficient. This consists of slanting window boards, a tempering apparatus for the incoming air, and a gravity exhaust duct to the roof. This system cannot be used in some of the states because of the now obsolete law, based on the old idea of the effects of the oxygen-carbon dioxide ratio in the air, and demanding thirty cubic feet of air per minute per pupil. In the large offices or auditoriums, however, a fan-driven ventilation system is the most efficient.

The relation of the air condition to health has been adequately proved. The regulated temperature promotes comfort and efficiency. Where the climate is temperate as in Western Europe, Eastern United States, and Japan, there are the centres of civilization. Cold air causes an anemic nasal mucosa, thus lowering its resistance to the entrance of infection. It has been proved that respiratory infections are higher in fan ventilated rooms than in window ventilated rooms, though the exact scientific reason is not known.

Dr. Winslow concluded by stating that the hygiene of the skin and through it a stimulation of the vasomotor machinery is the main problem in maintaining a correct balance between the external and internal atmospheric environments.

THE HAMPDEN DISTRICT MEDICAL SOCIETY

A meeting of the Hampden District Medical Society was held January 22 at 4.15 P. M. with fifty members present.

Three interesting surgical problems were presented by Dr. C. F. Lynch.

Dr. Dudley Carleton read a paper dealing with shoulder dislocations with negative x-rays. (Lantern slides.)

Dr. Lawrence D. Chapin read a paper on the relation of diabetes mellitus to thyroid disease.

The excellence of the papers was well appreciated by the members.

Dr. John W. Bartol, president of the Boston Medical Library, and his secretary, Mr. Kent, addressed the Fellows as to the dual drive for both the Library and Massachusetts Medical Society building.

Meeting was adjourned with luncheon at 6.15 P. M.

FIRST INTERNATIONAL CONGRESS OF MENTAL HYGIENE

To Be Held in Washington, D. C., May 5-10, 1930

Clifford W. Beers, founder and secretary of the National Committee for Mental Hygiene, announced February 11 that the First International Congress on Mental Hygiene, of which he has been elected Secretary-General, will be held in Washington, D. C., May 5-10, 1930. Mr. Beers's announcement was made from the offices of the First International Congress on Mental Hygiene, 370 Seventh Avenue, New York City.

The announcement states that the First International Congress is being sponsored by a representative committee of mental hygiene experts, psychiatrists, educators and distinguished citizens from the following countries: Africa, Australia, Belgium, Brazil, Bulgaria, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Japan, Luxemburg, New Zealand, Norway, Porto Rico, Russia, Spain, Sweden and Switzerland.

The Chairman of the Committee on Organization of the Congress, Mr. Beers's statement continues, is Dr. Arthur H. Ruggles of Providence, R. I., President of the American Foundation for Mental Hygiene and Chairman of the Executive Committee of the National Committee for Mental Hygiene. The Vice-Chairmen of the Committee are Dr. Samuel T. Orton of New York City, President of the American Psychiatric Association and Dr. George E. McPherson of Belchertown, Mass., President of the American Association for the Study of the Feebleminded.

Among the American organizations which have been invited to membership in the Congress are the United States and Canadian National Committees for Mental Hygiene, the American Psychiatric Association, the American Association for the Study of the Feebleminded, the American Neurological Association, the American Psychological Association, the American Orthopsychiatric Association, the American Association of Psychiatric Social Workers and all State Mental Hygiene Societies in the United States.

The program for the Congress will be in charge of an Executive Committee on Program headed by Dr. Frankwood E. Williams, Medical Director of the (United States) National Committee for Mental Hygiene. John R. Shillady, an expert in social work

organization, has been appointed Administrative Secretary and general executive in charge of the Congress affairs.

The initial contribution for basic expenses of the Congress has been made by the new American Foundation for Mental Hygiene whose founding was announced at the recent annual meeting of the National Committee for Mental Hygiene.

"As its name implies," said Mr. Beers, "the Washington gathering will be the first international congress of mental hygiene organization to be held. Leaders in mental hygiene work throughout the world have been anxious to get together for study and discussion of their common problems. The lack of funds to pay the cost of the Congress has now been removed through the gift of the American Foundation for Mental Hygiene. It is the purpose of the sponsors of the Congress to invite the participation of all countries and to enlist the co-öperation of heads of governments, public officials, as well as private institutions, associations and individuals."

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the amphitheater of the Peter Bent Brigham Hospital at 8:15 on the evening of February 26.

Presentation of cases.

The Significance of Seasonal and Climatic Variations in the Occurrence of Poliomyelitis. Dr. W. L. Aycock.

WM. P. MURPHY, M.D., *Secretary.*

SUFFOLK DISTRICT MEDICAL SOCIETY IN CONJUNCTION WITH BOSTON MEDICAL LIBRARY, NORFOLK DISTRICT MEDICAL SOCIETY AND MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

Boston Medical Library—John Ware Hall

Wednesday, February 27, 1929, at 8.15 P. M.

Medical Section:

"Some Relations of Diet to Fat Formation in the Body." Dr. Lafayette B. Mendel, Sterling Professor of Physiological Chemistry, Yale University.

Illustrated by lantern slides.

Light refreshments after the meeting.

GEORGE R. MINOT, M.D., *Chairman.*
HERMANN L. BLUMGART, M.D., *Secretary.*

BOSTON BACTERIOLOGICAL CLUB

At the meeting of the Boston Bacteriological Club on Feb. 23rd, Dr. Felix d'Herelle, now of the Yale Medical School, is to talk on Bacteriophage. His work on this subject has been of international interest and is one of the most widely discussed topics of the day.

Any members of the medical profession are welcome to attend his talk at M. I. T. on this date by getting in touch with the secretary.

Yours very truly,

B. E. PROCTOR, *Secretary,*
Boston Bacteriological Club.

NORFOLK DISTRICT MEDICAL SOCIETY

A regular meeting of The Norfolk District Medical Society will be held in the Roxbury Masonic Temple, 171 Warren Street, Roxbury, February 25, 1929, at 8:15 P. M. Telephone, Roxbury 6089.

Communication: Hypertension, a Clinical Survey, Dr. W. Richard Ohler.

Discussion: Opened by Dr. A. A. Hornor.

Following the Discussion of the papers, Dr. John W. Bartol and Mr. Frederick H. Kent will speak in connection with the United Campaign of the Massachusetts Medical Society and Boston Medical Library.

Collation.

FRANK S. CRUICKSHANK, M.D., *Secretary.*
23 Bay State Road, Boston.

SOCIETY MEETINGS

Combined Meetings of the Boston Medical Library, the Suffolk District Medical Society, the Middlesex South District Medical Society and the Norfolk District Medical Society (at Boston Medical Library at 8:15)

February 27, 1929—Medical Section. Detailed notice elsewhere on this page. (Under Suffolk District Medical Society.)

March 27, 1929—Meeting in association with Middlesex South District Medical Society. Clinical and Experimental Studies of Obstructing Jaundice and Its Complications. Dr. Waltman Walters, Mayo Clinic.

April 24, 1929—Annual meeting. Speaker, Dr. Walton Martin, New York City. Title to be announced later.

The medical profession is cordially invited to attend all these meetings.

February 21—New England Hospital for Women and Children. Complete notice appears on page 359, issue of February 14.

February 23—Boston Bacteriological Club. Detailed notice appears on this page.

February 26—Harvard Medical Society. Detailed notice appears on this page.

February 27—Massachusetts Psychiatric Society. Complete notice appears on page 358, issue of February 14.

March 2—The Boston City Hospital (Preliminary Notice of Clinical Meeting). Detailed notice appears on page 358, issue of February 14.

March 25, 26, 27—American Association for the Study of Goiter. Detailed notice appears on page 213, issue of January 24.

May 5-10—First International Congress on Mental Hygiene. Complete notice appears on page 411.

June 13—International Hospital Congress. Complete notice appears on page 212, issue of January 24.

DISTRICT MEDICAL SOCIETIES

Barnstable District Medical Society

Schedule of Meetings: May 2, 1929.

Bristol North District Medical Society

April 18, 1929—Spring meeting.

Essex North District Medical Society

May 1, 1929 (Wednesday)—Annual meeting at Lawrence General Hospital, One Garden Street, Lawrence, at 12:30 P. M. (Telephone 5156.)

May 2, 1929 (Thursday)—Censors meet at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. (Tel. 3430.)

Candidates should present their diplomas one week in advance to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence.

Essex South District Medical Society

March 6, 1929 (Wednesday)—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M. Symposium on Pneumonia. Speakers: Dr. Reginald Fitz, Diagnosis. Dr. Fred Lord, Treatment. Dr. William H. Robie, Heart in Pneumonia. Discussion from the floor.

RALPH E. STONE, M.D., Secretary.

Franklin District Medical Society

Meetings will be held on the second Tuesday of March and May.

Hampshire District Medical Society

March 13, 1929—Address by Dr. George E. Gage, Professor of Bacteriology and Physiology at the Massachusetts State College.

Middlesex East District Medical Society

The following schedule of meetings has been arranged for the coming year:

March—Reading.
May—Melrose.

Subjects and speakers to be arranged by committees in each city or town.

Middlesex North Medical Society

The annual meeting will be held the last Wednesday in April.

Middlesex South District Medical Society

March 27, 1929—Joint meeting with the Suffolk and Norfolk Districts.

April, 1929—Annual meeting. Definite date to be announced later.

Norfolk District Medical Society

Below are the proposed meetings of the Norfolk District Medical Society for the 1928-29 Season. The schedule below will be adhered to as strictly as possible. The carrying out of the proposed plan will, of course, depend upon the acceptances of invitations extended to the speakers. Minor changes may be necessary.

February 25—Complete detailed notice on page 412.

March 29 — Roxbury Masonic Temple. Subject and speakers to be announced.

May—Annual meeting program to be announced.

The Censors of the Society meet May 9, 1929, at the Roxbury Masonic Temple, Warren Street, Roxbury, at 4 P M., for the examination of candidates.

Plymouth District Medical Society

March meeting at the Moore Hospital, Brockton, Mass., March 21st, program to be announced later.

April meeting at the Commercial Club, Brockton, April 18th, at 6 P. M. Annual Oration by Dr. Ralph C. McLeod, Orator; dinner.

Suffolk District Medical Society

Combined meeting in conjunction with Boston Medical Library, Norfolk District Medical Society and Middlesex South District Medical Society. See page 412 for complete notice.

Worcester District Medical Society

March 13, 1929—Worcester City Hospital. Dedication of New Nurses' Home. Speaking program to be announced.

April 10, 1929—Grafton State Hospital. Program to be announced.

May 8, 1929—Annual meeting. Worcester Country Club.

Worcester North District Medical Society

Annual meeting the fourth Tuesday in April.

BOOK REVIEWS

Handbook of the Anatomy of the Child. By numerous collaborators. Edited by Dr. Karl Peter, Griefswald; Dr. Georg Wetzel, Griefswald; and Dr. Friedrich Heiderich, Münster. Munich; J. F. Bergmann, 1928.

It was Kirmisson who first made it clear by his monumental monograph that surgery in children deserves consideration as a special subject, not as a mere appendage of surgery in adults. The anatomy of children has hitherto received scant consideration. Symington's "Anatomy of the Child" and Scammon's work of the same title are brief and rather limited to topographical considerations. The editors of this new German handbook aim to present for practically the first time a systematic, comprehensive consideration of the anatomy of the child, especially from the developmental and clinical standpoints. It is not intended, however, to include the pathology of malformations. This first volume deals with tissues from the histological standpoint, the blood. the haematopoietic organs, growth and proportions, and the thoracic organs. It is illustrated with one hundred and twenty figures, of which some are partly in color, and with numerous tables. Obviously, the point of view of the authors of these earlier chapters is largely histological. Presumably the second volume, which is to present the systematic anatomy of the organs, will be written rather from the standpoint of gross anatomy. Particular interest in this first volume attaches therefore to the chapter on the thoracic organs, by Ludwig Gräper, which presents with admirable conciseness the essential differential anatomic facts in childhood of the thorax, diaphragm, pleura, lungs, mediastinum, heart, pericardium, thymus, great vessels, trachea, and oesophagus. At the close of each chapter there is an extended index of the literature. The advent of the second volume will be awaited with expectant interest by anatomists and clinicians.

Les Rayons Ultraviolets. By E. and H. Biancani. Gauthier-Villars et Cie, Paris, 1928.

For the reader of French, this little book is a very excellent handbook. Of the 200 pages, the first 79 concern the production of the rays, their measurement, their physical and biologic action. The facts are very completely, and at the same time succinctly stated. For the beginner, this portion, together with the details regarding technic, is particularly valuable.

Therapy is discussed under the headings of children's diseases, tuberculosis, skin diseases, medicine and surgery. This discussion is well balanced and quite a contrast to some of the over-enthusiastic expressions of opinion often seen. Not the least valuable is a short chapter on the incidents, accidents, and contra-indications of actino-therapy.

There are numerous footnotes and many references to previous authorities, but the exact reference to pages and volumes is not given. For students and beginners in ultraviolet light therapy, this book offers much.

Old Masterpieces in Surgery, Being a Collection of Thoughts and Observations Engendered by a Perusal of Some of the Works of Our Forbears in Surgery. By Alfred Brown, M.D. Privately Printed, Omaha, Nebraska, 1928. xviii + 263 pages.

This handsome quarto volume consists of a series of short, illustrated essays on the famous surgical books of medical history. All the material has appeared in monthly installments during the last four years in "Surgery, Gynecology and Obstetrics". The essays, covering only a few pages each, give the main facts in regard to the surgeon's life and times, while the full-page illustrations depict the title page of the surgeon's important work or reproduce an illustration from his book. To the modern surgeon who wishes to know something of the past, Dr. Brown's excellent book will be most useful in providing a source of quick reference to the principal surgical literature of the ages. The book is splendidly produced and has a good index.

Handicrafts for the Handicapped. By Herbert J. Hall, M.D., and Mertice M. C. Buck Knox. Revised Edition. New York: Dodd, Mead and Company, 1928. Price $2.50. xiv + [4] + 181 pages.

This book was first published in 1916 under the title of "The Work of Our Hands". It is now revised to form "a textbook of a few crafts which have proved to be of special value to handicapped

workers outside the institutions". The subject is an important one, long neglected by many physicians doing private practice and dealing with chronic disease. Details of basketry, chair seating, weaving, bookbinding, cement and pottery work are given in such a clear way that the average intelligent worker ought to be able to study out and practice the vocations for himself. The book, adequately illustrated and with a good bibliography, can be highly recommended.

Leukoplakia and Vulvar Kraurosis. By C. Sobre Casas and Felipe F. Carranza, Buenos Aires. Paris: Masson and Company, 1928.

This French monograph is an anatomo-pathological study of the extremely rare conditions of vulvar leukoplakia and kraurosis. The authors present a series of thirty-seven personal observations of cases in the gynecological service of the Torcuato de Alvear Hospital at Buenos Aires. The discussion of these cases is preceded by a discussion of the history, symptomatology, diagnosis, etiology, clinical characteristics, and treatment of the disease. The book is illustrated with twenty-six figures and two colored plates. The conclusions of this investigation are that vulvar leukoplakia and kraurosis, which are becoming more frequent in Buenos Aires, are to be regarded as pre-cancerous conditions, like leukoplakia of the tongue. Surgery is the treatment of election, and should be early and should include extensive dissection of the superficial and deep lymph-nodes of the inguinal canal and of the femoral triangle. Actinotherapy alone has shown itself inadequate. There is an elaborate bibliography.

Diseases of Infants and Children. By Henry Dwight Chapin, A.M., M.D., and Lawrence Thomas Royster, M.D. Sixth Revised Edition. William Wood and Company. New York, 1928. Price $7.50.

The popularity of Chapin and Royster's text book can be attested by the fact that, published first in 1909 it is now in its sixth revised edition and has had in addition five reprintings.

Although no great changes have been made in the present edition as compared with the fifth edition of 1925, it has been somewhat enlarged, somewhat rearranged, and generally brought up to date. With these changes it remains one of the best of the good text books on Pediatrics, of which there are a number.

Diagnostic et Therapeutique par le Lipiodol. Par J. A. Sicard et J. Forestier. Masson et Cie, Libraires de l'Academie de Medecine, Paris, France, 1928. Pp. 298.

In this volume the authors have retold and brought up to date their own knowledge of the uses of lipiodol and have incorporated with it the experiences of others.

The book is divided into several sections, the first dealing with the composition and action of the drug. Then follow several chapters on its use as a diagnostic agent and finally one devoted to its therapeutic use.

One must remember in reading this book that Sicard and Forestier have become (if one may be permitted to coin a new word) Lipiodolists. They are enthusiasts and one should perhaps look on some of this work with a critical eye, picking here and there the wheat and leaving the rest until time will tell how much of it is chaff.

The chapter on neurological diagnosis is very complete and some of the earlier claims for lipiodol have been toned down. They still claim that the best way to demonstrate the presence or absence of spinal subarachnoid block is by the use of lipiodol. This is contrary to the best American practice.

The demonstration of pulmonary lesions and those of the genito-urinary tract by the use of lipiodol has already been proven, but here again we must be a little critical. For example, the demonstration of lung abscess has not worked out in a very satisfactory manner in other hands.

It is, however, in lipiodol therapy that we must be especially cautious. Many claims are made for the cure of neuralgias and various joint lesions by the use of this drug that seem a bit far fetched, and one must wait for confirmation before accepting this section in its entirety.

If one is willing to read the book in this spirit it is well worth the study. It is well illustrated and there are many valuable points in technique to be gleaned from it. There is a large bibliography.

Public Health and Hygiene. By William H. Park, M.D. Second Edition. Lea and Febiger, Philadelphia, 1928. Price $9.00.

The field of public health and hygiene has now become so comprehensive that in addition to communicable diseases and the supervision of food and water supplies, treatment of sewage, and general sanitation, it now includes occupational diseases, the hygiene of environment, public health education, mental hygiene, and the prevention and control of mental deficiencies. From this standpoint the present volume is entirely adequate. Like all other books, however, which are written by many authors the various chapters vary in their completeness and use. Many of the chapters fall below the high standard set by the one on "Antimicrobial or Anti-protein Substances."

There are certain omissions which are somewhat surprising. There is no mention of the use of anti-pneumococcic serum; the much discussed "BCG" is not mentioned by name, nor is there any reference to convalescent poliomyelitis serum. Some of the material dealing with vaccination against smallpox is to be deplored. For example, the use of glycerinated points or strips of bone charged with vaccine virus is now forbidden in the United States, while the methods used for vaccination are not those that are now generally advocated.

The chapter on "Epidemiology and Administrative Work" is one of the most thoughtful and instructive in the volume and could be read with profit by epidemiologists and public health administrators. That on "Personal Hygiene" appears to be biased and reads like a tract.

The volume suffers from lack of proof reading and because of this neglect there are some inexcusable errors, along with some awkward English, particularly in the chapter written by the Editor-in-Chief.

With such an authoritative and complete work

as Rosenau's "Preventive Medicine" available, one might question the necessity of another and somewhat inferior book on the same subject.

Physician and Patient. By L. EUGENE EMERSON. Published by Harvard University Press, Cambridge, Massachusetts. Price $2.50.

In "Physician and Patient" Doctor Emerson has brought together a series of nine lectures on the care of the patient, given by various lecturers at the Harvard Medical School. The result is remarkable, both because of the selection of speakers and because of the subjects treated. The Table of Contents indicates the scope of the book.

1. Some of the Human Relations of Doctor and Patient. David L. Edsall, M.D.
2. The Care of Patients. Its Psychological Aspects. C. F. Martin, M.D.
3. The Medical Education of Jones, By Smith. W. S. Thayer, M.D.
4. The Significance of Illness. Austen Fox Riggs, M.D.
5. Some Psychological Observations by the Surgeon. Franklin G. Balch, M.D.
6. Human Nature and its Reaction to Suffering. Lawrence K. Lunt, M.D.
7. The Care of the Aged. Alfred Worcester, M.D.
8. The Care of the Dying. Alfred Worcester, M.D.
9. Attention to Personality in Sex Hygiene. Alfred Worcester, M.D.

Each lecturer's manner of presenting his subject is different, yet every one gives the impression that he is putting his best effort into what he has to say. The lecturers vary as much in their tone as in their subjects; some are essentially literary, others idealistic. Doctor Thayer's address is really a description of the personality of Sir William Osler, illustrating his qualities as a physician and his way of meeting life. Doctor Riggs gives a remarkably clear and practical presentation of the way in which illness reacts upon the patient; his approach to this subject is unique in that he puts into definite phrases the ideas which to most of us are nebulous, half-guessed speculations. Doctor Worcester, in the lectures on the Care of the Aged, Care of the Dying, and Attention to Personality in Sex Hygiene presents a triad of great beauty, based upon long years of experience. The chapter on Care of the Dying is really a classic. It seems to the reviewer unfortunate that this chapter should be immediately followed by the one on Sex Hygiene, no matter how delicately the latter subject is treated.

The conception of this course of lectures and the securing of the lecturers themselves seems to us a good deal of an achievement. The publication of the addresses in one volume gives permanence and the possibility of wide distribution to a message which should be read wherever medical men have patients under their care.

Roentgenology: Its Early History, Some Basic Physical Principles and the Protective Measures. By G. W. C. KAYE. Paul B. Hoeber Publishing Company, New York, N. Y. Price $2.00.

This very charming and instructive little book is reprinted from an article appearing in the *American Journal of Roentgenology and Radium Therapy.*

The first part of the book is historical in nature. It takes up in chronological order the early discoveries in the field of electricity, and describes the development of the discharge tube, the precursor of the modern x-ray tube.

The second part of the book is devoted to the physics of x-ray, and unfortunately is rather too technical to be understood by one who has not had special training in this branch of roentgenology.

The last part of the book is, in my opinion, the most valuable—it takes up in some detail the various protective measures which are necessary for the safety of x-ray and radium workers.

There is an appendix containing the recommendations of the British X-ray and Radium Protection Committee.

This book will be of great value to those who are installing new x-ray departments or who are renovating old ones.

The Surgical Clinics of North America. December, 1928. Vol. 8, No. 6. W. B. Saunders Co., Philadelphia.

This volume is the Pacific Coast Surgical Association number and is dedicated to the memory of John Hunter. It opens with an interesting appreciation of this founder of scientific surgery written by E. L. Gilcreest.

A. S. Lobingier emphasizes the importance of *pericholecystic adhesions* which are frequently due primarily to disease elsewhere than in the gall bladder, yet causing symptoms suggesting cholecystitis. He believes that in 30% of these cases freeing the adhesions without removal or drainage of the gall bladder is all that is indicated.

A clear well illustrated description of the successful repair by multiple operations in a severe case of *hypospadias* and in another of *epispadias* is presented by A. B. Cecil.

L. Eloesser gives an instructive case report of *congenital cystic disease of the lung,* mistaken for an empyema with bronchial fistula. The left lower

lobe was successfully removed, and the uninfected cystic upper lobe left in situ with a good result.

The methods of *prevention of recurrent goiter* are ably discussed by J. E. Else. He divides recurrences into four classes: (1) errors in diagnosis; (2) patients operated upon after permanent lesions have been produced; (3) incomplete operations; and (4) true recurrences. He advocates removing the entire thyroid except a thin layer along the posterior capsule.

Frank Hinman presents a clear, concise, well balanced discussion of *urogenital tuberculosis*. Renal tuberculosis starts as a unilateral disease. In case both renal and genital organs are involved, the kidney should be removed first. A persistent vesical tuberculosis may be relieved by temporary nephrostomy and permanent ureterorectoneostomy. In genital tuberculosis the epididymis alone should be removed if the disease is chiefly limited to that organ, but the radical operation should be done when there is marked involvement of the seminal vesicles.

As a whole, the articles in this number of the Surgical Clinics do not impress one as being as instructive and as carefully prepared as usual. Perhaps this is because there are thirty-four different contributors and the space allotted to each is consequently limited.

What Is Life? By AUGUSTA GASKELL. Introduction by Karl T. Compton, Professor of Physics, Princeton University, and by Raymond Pearl, Professor of Biology, the Johns Hopkins University. Published by Charles C. Thomas, Springfield, Illinois. Baltimore, Maryland. 1928. 304 pages.

In "What Is Life?" Augusta Gaskell presents an entirely original theory based upon modern atomic physics. Her thesis is that protons and electrons are able to unite in combinations of a type as yet undiscovered; these form the "active" ingredients of living matter. These elements, called the "Z-system", exist in combination with ordinary atoms, termed the "Y-system", and constitute an "atomic-intraätomic" dual system which is characteristic of living organisms. Given a "critical concentration of atoms" under proper conditions of temperature and pressure, such as might have occurred many times upon this globe, it would have been possible, Mrs. Gaskell believes, for a "Z-system" to originate, thus starting a new chain of living organisms. The application of this theory to many of the phenomena of life, such as evolution, heredity, and death, is discussed by the author.

Introductions to the book have been written by Karl Taylor Compton, Professor of Physics at Princeton, and by Raymond Pearl, Professor of Biology at Johns Hopkins. Professor Compton vouches for the accuracy of Mrs. Gaskell's physics, and both writers, in a somewhat cautious manner, say that the hypothesis is "interesting if true". At least they know of no evidence which refutes the theory.

The book is well worth reading. Mrs. Gaskell approaches the problem in a thoroughly scientific spirit, lays her arguments before the reader, and frankly states that the truth or falsity of the hypothesis can be proved by laboratory methods. The two criteria which she hopes will be applied are, first, the production of life under the condition which she calls a "critical concentration of atoms", and, second, the quantitative measurement of the "Z-system" determined at the moment of death, when this element becomes separated from the more material constituents of the body.

Whether this hypothesis is a revolutionary discovery or merely a theory incapable of proof only time can tell. Compton says "the author's fundamental assumption must be admitted as possible." It will be interesting to see whether Mrs. Gaskell's challenge to the laboratory will be accepted.

BOOKS RECEIVED FOR REVIEW

Physician and Patient (Personal Care). Edited by Eugene Emerson. Published by Harvard University Press. 244 Pages. $2.50.

Teeth and Jaws. Edited by Herman A. Osgood. Published by Paul B. Hoeber, Inc. 135 Pages. 419 Figures. Price $10.00.

Green's Pathology and Morbid Anatomy. Revised by A. Piney. Published by Lea & Febiger. 650 Pages. Price $7.50.

Handbook of Microscopical Technique. Edited by C. E. McClung. Published by Paul B. Hoeber. 495 Pages. Price $8.00.

Handicrafts for the Handicapped. Edited by Herbert J. Hall and Mertice M. C. Buck Knox. Published by Dodd, Mead & Company. 181 Pages. Price $2.50.

Pneumonia. Edited by Frederick Taylor Lord. Harvard Health Talks, 9. Published by Harvard University Press. 84 Pages. Price $1.00.

Diseases of the Nervous System. Edited by Smith Ely Jelliffe and William A. White. 1174 Pages. Price $9.50.

The Infant and Young Child. Edited by John L. Morse, Edwin T. Wyman and Lewis W. Hill. Published by W. B. Saunders Company. 299 Pages. Price $2.00.

Transactions of the American Gynecological Society, 1928. Edited by Floyd E. Keene. Published by C. V. Mosby Company. 268 Pages.

A Textbook of Medicine. Edited by J. J. Conybeare. Published by William Wood & Company. 976 Pages. Price $8.00.

Researches in Polynesia and Melanesia—Human Diseases and Welfare. Edited by Patrick A. Buxton. Published by London School of Hygiene and Tropical Medicine. 139 Pages. 27 Plates.

Thyroxine. Edited by Edward C. Kendall. Published by The Chemical Catalog Company, Inc. 265 Pages. $5.50.

Kaufmann's Pathology. Three volumes. Edited by Edward Kaufmann. Translated by Stanley P. Reimann. Published by Blakiston's Son & Company. 2452 Pages. Price $30.00.